Microlepidoptera of Europe

Reinhard Gaedike

Tineidae II

(Myrmecozelinae, Perissomasticinae, Tineinae, Hieroxestinae, Teichobiinae and Stathmopolitinae)

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Tineidae II

(*Myrmecozelinae, Perissomasticinae, Tineinae, Hieroxestinae, Teichobiinae and Stathmopolitinae*)

By

Reinhard Gaedike

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Dedicated to my children Uwe and Sabine
and
in memory of Gaden S. Robinson (*1949–2009*)

Contents

Acknowledgements IX
Abstract XI
Introduction XII
Material and Methods XII
The Body Structure of the Tineoidea XII
Collection and Preparation Techniques XVII
Abbreviations XXII

1 **Check-list of European and Macaronesian Myrmecozelinae, Perissomasticinae, Tineinae, Hieroxestinae, Teichobiinae and Stathmopolitinae** 1
2 **Systematic Treatment of the Genera and Species of the European Tineidae** 7
Myrmecozelinae 7
Perissomasticinae 27
Hieroxestinae 101
Teichobiinae 109
Stathmopolitinae 112
3 **Distribution Catalogue** 115
4 **Colour Plates** 122
5 **Drawings, Male Genitalia** 138
6 **Drawings, Female Genitalia** 174

References 209
Additions to Volume 7 235
Index to Entomological Genus-Group Names 243
Index to Entomological Species-Group Names 245

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I would like to express my special thanks to my colleagues at the DEI / SDEI. Thomas Schmitt, the recent director, kindly agreed the continuation of the long-time loan of the tineid collection, the base for my scientific work. This enabled me to continue my studies for the recent volume. The scientific chief of the library, Eckhard Groll and the librarians Holger Framke, Ute Kaczinski and Gabriele Mirschel supplied me with copies of scientific literature whenever needed.

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Abstract

The second volume of Tineidae treats the subfamilies Myrmecozelinae, Perissomasticinae, Tineinae, Hieroxestinae, Teichobiinae and Stathmopolitinae from Europe. A total of 103 species are diagnosed and figures of the moths, male and female genitalia are given. Information is added on the life history and distribution of the species. The distribution data are summarized in a table showing the records for each European country.

The following nomenclatural innovations are introduced: *Myrmecozela rjabovi* Zagulajev, 1968, syn. n., *Myrmecozela hyrcanella* Zagulajev, 1968, syn. n., *Myrmecozela carabachica* Zagulajev, 1968, syn. n., *Myrmecozela gajndzhiella* Zagulajev, 1968, syn. n., *Myrmecozela ordubasis* Zagulajev, 1968, syn. n., *Myrmecozela dzhungarica* Zagulajev, 1971, syn. n., *Myrmecozela taurella* Zagulajev, 1971, syn. n., *Myrmecozela pontica* Zagulajev, 1971, syn. n., *Myrmecozela armeniaca* Zagulajev, 1971, syn. n., *Myrmecozela kasachstanica* Zagulajev, 1972, syn. n., *Myrmecozela stepicola* Zagulajev, 1972, syn. n., *Myrmecozela saule* Zagulajev, 1972, syn. n., *Myrmecozela asariella* Zagulajev, 1972, syn. n., *Myrmecozela imeretica* Zagulajev, 1972, syn. n., and *Myrmecozela samurensis* Zagulajev, 1997, syn. n. are synonymized with *Myrmecozela lutosella* (Eversmann, 1844), *Myrmecozela deserticola* Walsingham, 1907, syn. n., *Proctolopha parnassiella* Rebel, 1915, syn. n., *Myrmecozela hispanella* Zagulajev, 1971, syn. n., and *Myrmecozela sordidella* Zagulajev, 1975, syn. n. are synonymized with *Myrmecozela ataxella* (Chrétien, 1905), *Myrmecozela changaicus* Zagulajev, 1997, syn. n. is synomized with *Myrmecozela mongolica* Petersen, 1965, *Tinea rostrata* Petersen, 1966, syn. n. is synonymized with *Tinea basifasciella* Ragonot, 1895, *Tineola quadruplella* Caradja, 1920, syn. n. is synonymized with *Proterospastis merdella* (Zeller, 1852), *Tineola tripolitella* Rebel, 1908, syn. n. is synonymized with *Proterospastis autochthones* (Walsingham, 1907), *Reisserita flavofimbriella* Chrétien, 1925, comb. n. is transferred from *Tineola*. *Niditinea baryspilas* (Meyrick, 1937) is a valid species (together with its synonym *N. unipunctella* Zagulajev, 1960), and not a synonym of *N. tugurialis* (Meyrick, 1932).

Two taxa (*Eudarcia microptera* Dominguez, 1996 and *Pararhodobates syriaca* (Lederer, 1857)), overlooked in volume 7, are listed in the additions. The following taxa, which were described as new after the publication of volume 7 (Tineidae I): *Eudarcia* (*Meessia*) *prealpina* Varenne & Nel, 2017; *Eudarcia saxatilis* Bidzilya, Budashkin & Gaedike, 2016; *Eudarcia ignorata* Bidzilya, Budashkin & Gaedike, 2016; *Infurcitinea restonicae* Varenne & Nel, 2016; *Infurcitinea paratrifasciella* Varenne & Nel, 2018; *Nemapogon peslieri* Varenne & Nel, 2017; *Nemapogon phoenicica* Gaedike & Kullberg, 2016; *Nemapogon inexpectata* Varenne & Nel, 2017, and *Nemapogon shamica* Gaedike & Kullberg, 2016. *Obesoceras* (*Abchagleris*) *abchasicum* Zagulajev, 1979, previously a synonym of *Eudarcia glaseri* (Petersen, 1967), is established as a valid taxon (Bidzilya, Budashkin & Gaedike, 2016). New country records are published for numerous species.

Introduction

The present book continues the study of European Tineidae, it is the second and last part, of which the first part was published as volume 7 of this series.

The numbering of the species continues from volume 7.

In the "Additions to volume 7" are given information about new taxa, described since 2015 and new faunistical or biological records to taxa from volume 7.

Material and Methods

Sources for the studied material were mainly European collections of museums and private entomologists (see list of abbreviations and acknowledgments). Beside literature cited, an important source of information are the card files on the taxonomy, faunistics and biology of tineids, compiled by my predecessor Günther Petersen, and continued by myself. These card files are now deposited at the SDEI (Senckenberg Deutsches Entomologisches Institut, Müncheberg/Germany). Since the late 1990s, bibliographical and faunistic information has also been stored in an electronic database.

All records about distribution and biology provided in this book are based on material studied by Petersen or me, of which the identification has been verified by examination of genitalia whenever necessary. Information from literature (with citation of the reference) is used only in cases in which the determination was unquestionable or when it was previously checked by our own examination. The boundaries for the inclusion of the species in this volume follow the definition of the Fauna Europaea database, with the exception that here the south-eastern boundary is the mountain ridge of Caucasus Mountains.

Colour images of the moths were taken with a digital camera. For some taxa it was impossible to take images, because no specimens were available or the condition was too poor to photograph.

Drawings of the genitalia were made using a microscope with a net micrometer in the ocular. The net micrometer covers one square centimetre divided into four hundred squares of half a square millimetre. The magnification used is adapted to the size of the genitalia. The most common magnification is 160x (16x ocular and 10x objective). For larger objects a magnification of 100.8x (16x ocular and 6.3x objective) was used and for a few very large objects a magnification of 51.2x (16x ocular and 3.2x objective). An analogous net with squares of 7.5 mm was drawn on paper to have a scale for the drawing.

The Body Structure of the Tineoidea

Robinson & Nielsen (1993) extensively described the morphology of Tineidae. Here is a summary of the main facts adopted from this text.

HEAD. The head vestiture is often characteristic, consisting of erect piliform scales on occiput, vertex and frons. The scales tend to be grouped into tufts,

and may form more or less conspicuous whorls. Visible ocelli and chaetosemata are absent. The head capsule is strongly marked with sutures or sulci, which are scale-free and membranous or broad and clearly flexible. The compound eyes are unmodified, the facets of regular size. The eyes may be emarginate postero-dorsally to accomodate the antennal base (e.g. some Hieroxestinae). The mouthparts are strongly developed, but reduction of one or more of the component structures occurs frequently. In some genera galeae and maxillary palpi are extremely reduced, in *Tenaga* Clemens, 1862 these are absent. The reduction of maxillary palpi is strongly correlated with reduction of the galeae. The fully developed maxillary palp is five-segmented and bears various sensillae. The galeae in most Tineidae are short, disassociated, not as strongly sclerotised as in other Lepidoptera families. Reduction or loss of the galeae is commonplace. Galeae also bear sensillae. The labial palpi are always fully developed and invariably three-segmented. The position in which the labial palps are held is variable, for example in some Hapsiferinae they are distinctly recurved, in some Meessiinae they are drooping, in Euplocaminae the third segment is directed upward. Second segment bears coarse lateral bristles in most genera, arranged in an irregular line, additionally there may be a terminal whorl of bristles from the upper outer surface. In some genera the second segment may have a ventral brush of scales. The antennae provide further characters. The scape is usually stout, in many genera an antennal pecten is present, consisting of from two or three to about thirty stout bristles. The scape is smooth-scaled in most genera, but in *Eudarcia* Clemens, 1860, for example, elongate dorsal scales form a sparse eye-cap. The pedicel is always slightly larger than the basal flagellomeres, simple and barrel-shaped. The flagellomeres are cylindrical or approximately barrel-shaped in almost all genera. In some groups (for example *Morophaga* Herrich-Schäffer, 1853) ventrally the flagellomeres are irregular in cross-section. The flagellomeres are conspicuously ciliated to finely pubescent. There is some sexual dimorphism visible,

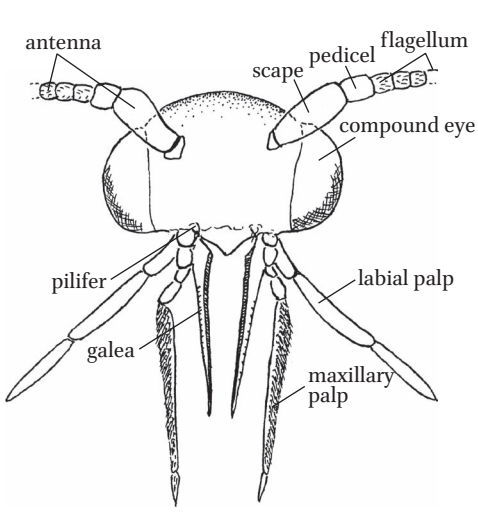

FIGURE 1 *Head (schematic) (according to Robinson & Nielsen, 1993)*

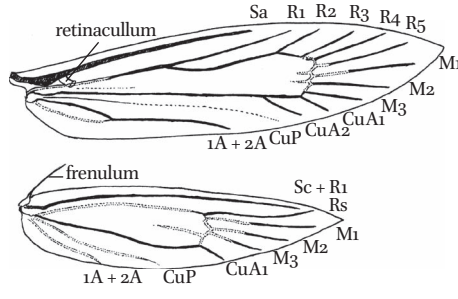

FIGURE 2 *Complete tineid wing venation (schematic) (according to Robinson & Nielsen, 1993)*

females have fewer and shorter cilia than males and in some genera the antenna of males is thicker than the antenna of females.

SEM studies have shown, that cilia consist of a mixture of various sensillae. The flagellomeres in most genera are completely covered by one or two annuli of overlapping scales. An exception is *Morophaga* in which the ventral surface of the antennae is scale-free. The length of antennae varies both within and between genera, from 0.3x the length (the pantropical genus *Harmaclona*) to 1.1x the length of the forewing in *Tenaga*.

THORAX. In most genera the legs are smooth-scaled, with the exception of the hind tibiae which carry elongate suberect scales on the upper surface. A foretibial epiphysis is present in most genera. The tibial spur pattern is invariably 0 - 2 - 4.

The wings vary in shape. Generally both wings are subovate although the shape of the anterior margin of the hindwing varies widely and may be concave in some genera. The forewing apex may be produced and upturned, the termen is usually convex. The forewing patterns varies widely, whereas the hindwings bear no pattern except in *Euplocamus* Latreille, 1809. There is considerable variation in the type of scale-cover of the forewing. Rough or raised scaling is frequently encountered. The wing scales are relatively long and slender. They are frequently multi-layered with the upper layer consisting of relatively long and slender scales with deeply dentate apical margins and the lower layer of shorter, broader and apically scalloped or rounded scales. Typically, the wings have a full complement of free veins. In forewing, Sc is invariably present, branches of R terminate anterior to or at the apex. Stalking of pairs of R branches occurs in many genera; the commonest pairing is R4 + R5, but R3 + R4 is frequent also, for example in *Morophaga*. R2 appears always to be free. More complicated stalking sequences, involving R3, R4, R5 and, in some cases, M1 may be seen in several genera, notably *Tenaga* and nearly all Hieroxestinae. Although all three M branches are usually present. Stalking of M1 and M2, M2 and M3, and M3 and CuA1 is present in some genera. Loss (or fusion) of either CuA1 or CuA2 occurs. CuP is present in all Tineidae but is tubular only proximally and distally. A1 and A2 typically form a broad basal loop but are fused for their distal two-thirds. A2 is weak in many genera and may be obsolete. More dramatic modifications to venation occur in those genera with a hyaline forewing spot, for example in *Monopis* Hübner, 1825 and in *Crypsithyris* Meyrick, 1908. As in the forewings, the hindwing venation is typically complete, with all veins free. Sc + R1 and Rs are separate and subparallel, stalking of M1 and M2 is common. The frenulo-retinacular wing-coupling varies considerably. The female retinaculum consists of a few semi-erect scales on Cu. The male retinaculum is typically an elongately triangular tongue with a rolled apex arising from Sc. The retinaculum is absent in *Trichophaga* Ragonot, 1894 and it is also lost in some Oriental species of *Edosa* Walker, 1866. The male frenulum is a single bristle, the female frenulum typically consists of two or three bristles.

ABDOMEN. The abdomen typically consists of eight segments in the male and seven in the female before the genitalia. The first sternum is lacking and the first tergum consists of a sclerotised frame enclosing a trapezoidal membrane. T I is usally fused with T II, at least medially. Usually slender and elongate apodemes arise from close to

the anterior margin of S II. Modifications of the hind segments are commonplace. Males of several genera have shallow coremata in the pleural membrane of the eighth segment.

MALE GENITALIA. The male genitalia exhibit great variety and provide a suite of characters useful to the systematist at lower rather than higher taxonomic levels. Some genera, for example *Monopis*, exhibit markedly conservative genital structure.

The vinculum and tegumen are not differentiated in that they form a ring that is unbroken laterally. Dorsally the tegumen is emarginate in many groups and may not form a closed ring across the dorsal midline. Ventrally the vinculum forms a saccus that may be shallow and triangular or elongate and rod-like. Saccus may be bilobed in *Ateliotum* Zeller, 1839. The uncus of many Tineidae is a bilobed and comparatively simple structure. The two lobes are usually fused with the tegumen with, at most, a zone of flexion between. A hook-like uncus is found only in the Tineinae and even here the bilobed origin of the structure is clearly evident. A gnathos is developed in many genera and takes a variety of forms. Typically it consists of two arms, but medial fusion occurs in many groups. A subscaphium, when developed, is rarely more than a simple ribbon of sclerotization. Development of a transtilla is rare;

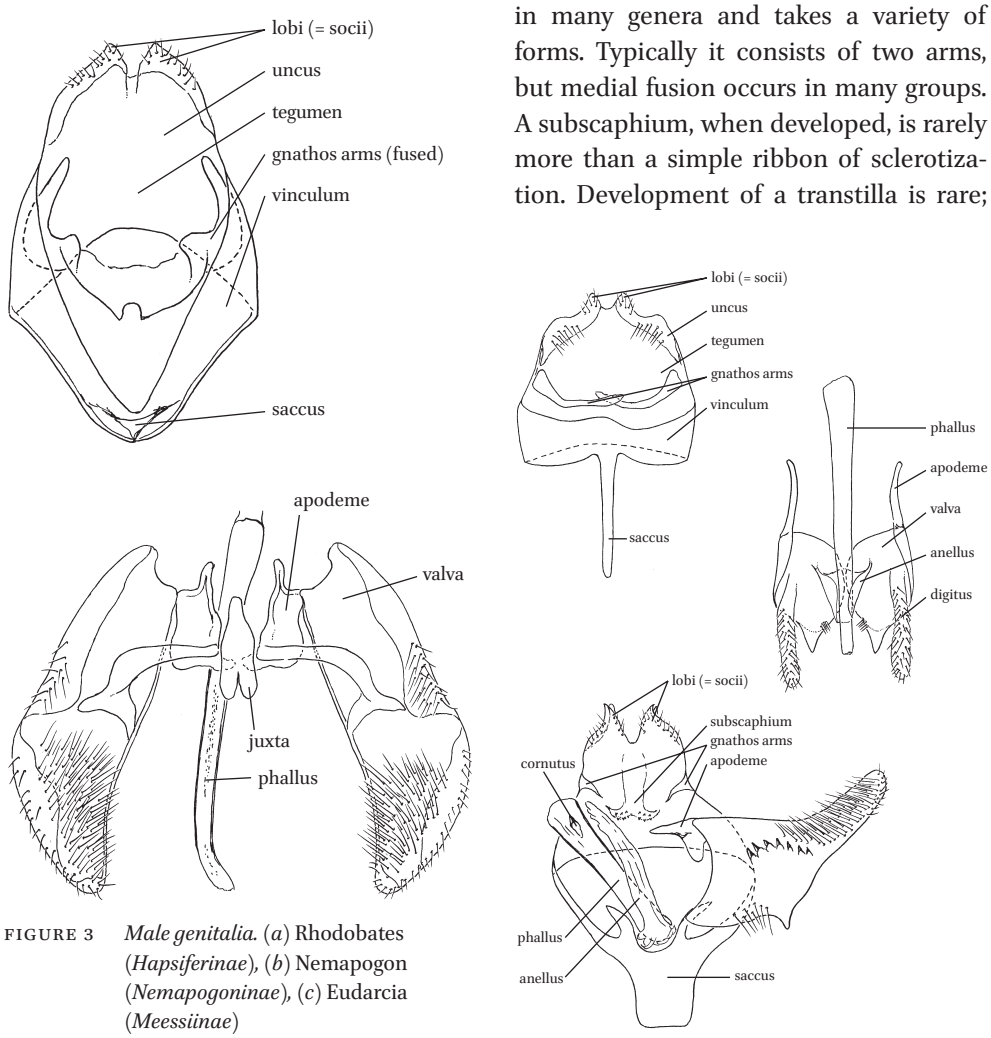

FIGURE 3 *Male genitalia.* (*a*) Rhodobates (*Hapsiferinae*), (*b*) Nemapogon (*Nemapogoninae*), (*c*) Eudarcia (*Meessiinae*)

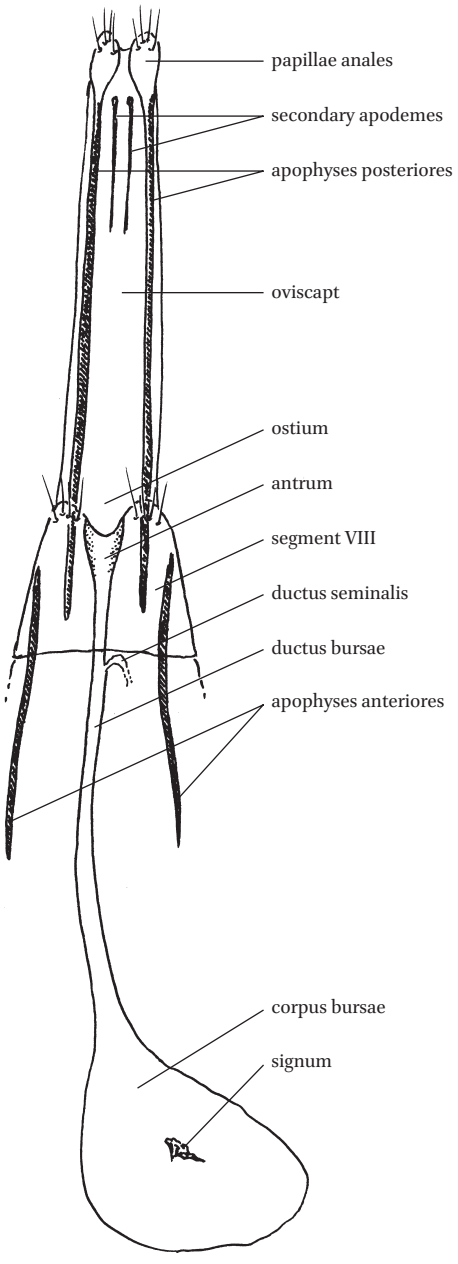

FIGURE 4 *Female genitalia* (*schematic*) (*adopted from Robinson & Nielsen, 1993*)

references to such in the literature often refer to the conspicuous valval apodemes that might be mistaken for a transtilla when valvae are spread. The valva exhibits great variation. In the majority of genera the valvae are ventral and move most readily in a dorsoventral plane. In such groups the valvae are partly fused ventrally or at least bridged by a modified juxta. The valval apodemes are invariably elongate and robust. The phallus is typically cylindrical. The microtrichia in the vesica are in some cases large enough to be qualified as minute thornlike cornuti. Larger cornuti sometimes occur, for example, in species of the *Tinea pellionella*-group.

FEMALE GENITALIA. The oviscapt is typically elongate and telescopic. The papillae anales are typically soft and hardly melanised, they are laterodorsal, invariably setose, and are rounded apically. Set in the ventral membrane of the posterior half of the oviscapt is a pair of sclerotised rods. These are peculiar to Tineoidea and have been described as apophyses by various authors. However they appear not to function as muscle attachments but as supports for the ventral membrane of the ovipore and possibly as egg-guides. They are apparently lost when the oviscapt is reduced. The tergum of the eighth segment is often simple and shield-shaped with a row of six to ten stout setae at or close to the posterior margin. There is usually a longitudinal bar of sclerotisation at or close to tergal margin, referred to as dorsal rami. The rami extend anteriorly from the corners of the tergum to join the apophyses anteriores. In most groups they articulate with the apophyses, but in some they are strongly fused and form a "Y" when viewed laterally. The eighth sternum varies widely in shape between groups. The ostium bursae is invariably sited within the eighth sternum and the shape of the sternum is to a great extent dictated by the size and position of the ostium. The sternum is usually emarginate posterior to

the ostium so that in a species with an anterior ostium the sternum may be almost completely divided longitudinally. The eighth sternum bears numerous sensillae and may additionally be microtrichiate. Large setae are frequently concentrated at the posterior margin; in many Scardiinae these large setae are confined to the apices of a pair of processes at either side of the ostium; in many Nemapogoninae the setae are reduced to a pair and occur at the apex of a medial process overlying the ostium. The anterior corners of the eighth sternum are extended anteriorly. At the apices of the extended corners are the invaginations of the apophyses anteriores. The anterior sternal corners may be strongly sclerotised, the sclerotisation continuing posteriorly along the lateral margins of sternum or forming a "bridge" beneath the tip of the ostium (ventral rami). The ductus bursae may be sclerotised for part of its length. Sclerotisation extending along the ductus as a continuation of that of the eighth sternum is referred to as the antrum, which is developed in many groups. The corpus bursae is an ovate or pyrifom sac, in some groups with one or more signa.

Collection and Preparation Techniques

Most tineids may be collected successfully at light using conventional techniques – either light traps or an illuminated sheet. Collecting from an illuminated sheet has the advantage that specimens may be collected alive and in good condition.

The reaction of the tineids to different wavelengths of light is not uniform. The tineids that are caught at light vary qualitatively with the position of that light. The larger and more robust taxa may be collected on open ridge-tops, smaller and more weakly-flighted genera, e.g. *Monopis* are more readily collected in sheltered sites among trees.

Some tineids may be more easily collected by day, the appropriate techniques include sweep-netting and beating vegetation, and the use of Malaise-traps. Good results are possible also by careful searching on the food substrates of the moths, for example fungi, lichens, pellets, nests of birds, mammals and hymenopterans. Tineids may be flushed from knotholes and hollows in trees, and from scees by the use of a smoke-generator or bee-smoker.

Baiting techniques for adult tineids are hardly developed, but there is a lot of information about attraction of tineid species to pheromones. A compilation of the published results are available in El-Sayed (2012).

A great amount of information about tineid biology and the species stock can be gained by collecting the early stages and rearing them. Nemapogoninae and Scardiinae should be searched for in bracket-fungi and adjacent dead or dying wood. Indications of larval feeding are webbed accretions of fine frass above the larval feeding-tunnels. Ceratophagous Tineinae may be reared from weathered mammal corpses and carnivore faeces, pellets ejected by raptors, and the feather linings of abandoned bird nests. Another possibility is the construction of artificial birds' nests, which are placed in e.g. hollow trees before the flight season of the moths. Females may lay their eggs in these nests, which are then collected during the next winter, and adults are bred out indoors (Jensen, 1989).

The species can be collected also after collecting fungi, lichens, birds' nests or contents of mammals' nests and after that bred

out indoors. For more details on collecting techniques see Robinson & Nielsen (1993).

Genitalia preparations were made following the principles expounded by Robinson (1976), but without staining. Permanent mounts were made in Euparal following dehydration through an ethanol series.

In the past, the preparations were made according to Petersen (1953). After maceration in KOH and washing in water, the object was transferred for one hour into a mixture of phenol-chloralhydrate for cleaning. After that, the genitalia could still be manipulated and mounted in a "Faure-mixture," which is composed of "gum arabicum," chloralhydrate, glycerine and distilled water. The edges of the cover glass had to be covered by Canada balsam to avoid destruction of the preparation by penetration of air.

The arrangement of the genitalia on the microscope slide depends on the examined taxa. Mostly the male genitalia were arranged dorsoventrally. In most cases valvae were spread and phallus was removed and placed beside the genitalia apparatus. In other cases, for example in Nemapogoninae, it is easier to remove valvae together with phallus and put them beside the uncus-tegumen-complex. The male genitalia of Myrmecozelinae, Perissomasticinae and Tineinae were mounted laterally after removing one valva. The female genitalia were always mounted dorsoventrally. It is conventional to extrude the oviscapt fully.

Systematics of the Tineoidea and Their Family Groups

Before Robinson (1988), the Tineoidea also included the groups now assigned to the Gracillarioidea. Robinson, using phylogenetic methods, reconstructed two lineages, the "tineoid" lineage comprising Tineidae, Eriocottidae, Acrolophidae and Psychidae and the "gracillarioid" lineage, comprising Bucculatricidae, Gracillariidae and Roesterstammiidae.

Based on morphological data, Tineoidea, Simaethistoidea and all remaining Ditrysia appeared in a polytomy until the late 1990s (Kristensen & Skalski, 1998). Later, phylogenetic studies demonstrated that Tineoidea are not monophyletic (Heikkilä & Kaila, 2010; Mutanen *et al.* 2010). This is supported by the molecular based analysis of Sohn *et al.* (2013) who showed that Psychidae are the sister group to all remaining Ditrysia, including Tineidae.

In the the molecular phylogeny and revised classification for the Tineoidea of Regier *et al.* (2014) the results found were:

- Monophyly is strongly supported for Psychidae subsuming Arrhenophanidae, for Eriocottidae, and for Tineidae subsuming Acrolophidae but excluding Dryadaulinae and two genera previously assigned to Meessiinae;
- two new families are described, Dryadaulidae stat. rev. and Meessiidae stat. rev., based on subfamilies previously included in Tineidae but strongly excluded from this and all other families by molecular results.

Reconstruction of the phylogenetic relationships among tineid family groups still needs detailed study.

The principal autapomorphy of the Tineoidea is the presence of a slender pair of ventral pseudapophyses within abdominal segment 10 (additional to the anterior

and posterior apophyses) (Robinson, 1988; Davis & Robinson, 1998). The oviscapt is conspicuously elongated and telescopic. Further characters for distinguishing Tineoidea from most other ditrysian Lepidoptera are (in most cases) the presence of a head brush (erect scales on the frons), labial palp with lateral bristles, and haustellum with short, disassociated galeae (Dugdale, 1988, cited in Davis & Robinson, 1998).

Tineidae

Very small to medium-sized moths, forewings 2.5 to more than 25 mm long. Many species can be recognized easily by: proboscis very short or even absent; hind tibiae with erect and elongate scales on upper surface; adults resting with wings raised tent-like over the body with the body parallel to substrate (see text-figures 5–10),

FIGURES 5–10 Resting position: (*5*) *Cephimallota crassiflavella* (Myrmecozelinae), (*6*) *Elatobia fuliginosella* (Tineinae), (*7*) *Tineola bisselliella* (Tineinae), (*8*) *Tinea semifulvella* (Tineinae), (*9*) *Tinea trinotella* (Tineinae), (*10*) *Monopis obviella* (Tineinae) (images made by P. Lichtmannecker)

and moving with a characteristic scuttling run (Davis & Robinson, 1998).

The present volume will cover the subfamilies Myrmecozelinae, Perissomasticinae, Tineinae, Hieroxestinae, Teichobiinae and Stathmopolitinae.

The sequence of the tineid subfamilies given in Microlepidoptera of Europe is subjective, following the sequence previously used by my colleague G. Petersen who arranged them according to the biology of the larvae, beginning with the mycetophagous and lichenivorous groups and ending with the ceratophagous groups.

Myrmecozelinae

No autapomorphies are recognized for Myrmecozelinae. The group was considered to be polyphyletic, but might contain a monophyletic core defined by:

– male genitalia with phallus strongly curved and basally boot-shaped;
– anterior margin of vinculum recurved dorsad.

Constituent species are generally large and robust and cannot be included in any other subfamily (Davis & Robinson, 1998).

Larvae only rarely case-making, burrowing in loose vegetable detritus making silken galleries, some soil-dwelling, some possibly wood-boring, brood-parasites (and case-makers) in nests of ants, on seeds and stored products, possibly associated with arthropod remains, and in birds' nests, on legume seeds and mantis egg-cases, predators on mealy-bugs, in bark or aerial roots, in termite nests (Robinson, 2009). Myrmecozelinae are classified into about 60 genera with approximately 300 species in all zoogeographical regions. Five genera with 26 species are known from Europe.

Perissomasticinae

Autapomorphies of Perissomasticinae are (Davis & Robinson, 1998):

– Forewings usually glossy and unicolorous, labial palps short;
– male genitalia with gnathos absent, phallus often articulating with vinculum;
– females with corethrogyne invariably present on intersegmental membrane between segment VII and segment VIII.

Larvae and larval biology unknown, but there are some indications that larvae live in mammal burrows.

Perissomasticinae are known from the Old World tropics and subtropics, with the greatest diversity in the Afrotropical (genus *Perissomastix* Warren & Rothschild, 1905) and Oriental regions (genus *Edosa*). Altogether, there are five genera with about 250 species, of which two genera with three species occur in Europe.

Tineinae

Autapomorphies of Tineinae are (Davis & Robinson, 1998):

– male genitalia with uncus lobes fused and forming an articulated hook;
– pupae with only anterior bands of abdominal spines; larvae with bisetose SV-group on meso- and metathorax, stemmata reduced to a pair or none.

Small or large moths, head with erect piliform scales; venation complete in most taxa. Species of Monopini with a hyaline spot in forewing.

Larvae feed externally from a case or silken tube or burrow in loose substrates, on keratin or chitin (wool, feathers, arthropod remains, guano etc.), often in presence of fungal hyphae, some species on decaying vegetable matter, on fungi or on lichens.

There are 41 genera with about 350 species, of which 16 genera with 67 species occur in Europe.

Hieroxestinae

Autapomorphies of Hieroxestinae are (Davis & Robinson, 1998):

- head wedge-shaped in lateral view, the vestiture consisting of lamellate scales closely appressed to head, posterior scales of vertex and scales of occiput directed caudally; antennal scape elongated, without pecten, labial palp strongly divergent;
- females with single bobsleigh-shaped signum.

Larvae feed externally, with some webbing and tunnelling behaviour, on a wide range of dead and decaying plant material or, rarely, grazing fungal mycelia in termitaries or in birds' nests; *Wegneria* Diakonoff, 1951 is reported to feed on guano, some species of *Opogona* Zeller, 1854 on Saint Helena are case-makers feeding on lichen.

There are 11 genera with about 290 species, of which three genera with six species occur in Europe.

Teichobiinae

Autapomorphies of Teichobiinae are (Davis & Robinson, 1998):

- head with semi-appressed, forward-directed lamellate scales, frons smoothly scaled, mouthparts reduced, antenna attenuated;
- male genitalia without gnathos, juxta fused with inner faces of valvae;
- oviscapt of females with papillae anales sclerotized and pointed to form piercing apex.

Early instar larvae are leaf-miners, later instars feed externally on fern sporangia from a loose portable case.

There are three genera with 22 species, of which one genus with two species occurs in Europe.

Stathmopolitinae

Autapomorphy of Stathmopolitinae is (Davis & Robinson, 1998):

- female eighth abdominal segment asymmetrical, with process on left side.

Larvae feed internally in goat droppings.

There is one genus with one species endemic to the Canary Islands.

Abbreviations

AZD	Aquazoo Düsseldorf Germany
BÅB	Bengt Å. Bengtsson, Färjestaden, Sweden
BMNH	The Natural History Museum, London, United Kingdom
CNC	Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Ontario, Canada
coll. Baisch	Günter Baisch, Biberach, Germany
coll. Baldizzone	Giorgio Baldizzone, Asti, Italy
coll. Barton	Ian Barton, Stretham, United Kingdom
coll. Bengtsson	Bengt Å. Bengtsson, Färjestaden, Sweden
coll. Bettag	Erich Bettag, Dudenhofen, Germany
coll. Bolt	Daniel Bolt, Schiers, Switzerland
coll. Corley	Martin F. V. Corley, Faringdon, U.K.
coll. Derra	Georg Derra, Reckendorf, Germany
coll. Henderickx	Hans Henderickx, Mol, Belgium
coll. Ivinskis	Povilas Ivinskis, Vilnius, Lithuania
coll. Jaworski	Tomasz Jaworski, Raszyn, Poland
coll. Jelinek	Karl-Heinz Jelinek, Leverkusen, Germany
coll. Junnilainen	Jari Junnilainen, Vantaa, Finland
coll. Keller	Rudolf Keller, Sulzemoos, Germany
coll. Larsen	Knud Larsen, Dyssegaard, Denmark
coll. Lindeborg	Mats Lindeborg, Kalmar, Sweden
coll. Richter	Ignac Richter, Prievidza, Slovakia
coll. Roweck	Hartmut Roweck, Kiel, Germany
coll. Schmitz	Willibald Schmitz, Bergisch-Gladbach, Germany
coll. Schreurs	Arnold Schreurs, Kerkrade, The Netherlands
coll. Stübner	Zoologische Staatssammlung, Munich, Germany
coll. Werno	Andreas Werno, Nunkirchen, Germany
Coll. Wikström	Bo Wikström, Nummela, Finland
FMNH	Finnish Museum of Natural History, Helsinki, Finland
FNP	Frank Nelson Pierce (†)
GD	Georg Derra, Deckendorf, Germany
GF	Gerrit Friese (†)
GP	Günther Petersen (†)
GSR	Gaden S. Robinson (†)
HGA	Hans Georg Amsel (†)
IB	Ian Barton, Stretham, United Kingdom
IRIPP	Iranian Research Institute of Plant Protection, Tehran, Iran
JŠ	Jan Šumpich, Praha, Czech Republic

KS	Klaus Sattler, London, United Kingdom
LMK	Landesmuseum für Kärnten, Klagenfurt, Austria
MC	Martin F. V. Corley, Faringdon, U.K.
MFSN	Museo Friulano di Storia Naturale, Udine, Italy
MNCN	Museo Nacional de Ciencias naturales, Madrid, Spain
MNHN	Muséum National d'Histoire Naturelle, Paris, France
NMNHB	National Museum of Natural History "Gr. Antipa", Bucharest, Romania
NMPC	National Museum Prague, Czech Republic
RG	Reinhard Gaedike, Bonn, Germany
RMNH	Naturalis Biodiversity Centre, Leiden, The Netherlands
Sch	Max von Schantz (†)
Scholz	Axel Scholz (†)
SDEI	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany
SMNK	Staatliches Museum für Naturkunde, Karlsruhe, Germany
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany
ZAG	Aleksey Konstantinovich Zagulajev (†)
ZFMK	Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany
ZIN	Zoological Institute, Russian Academy of Sciences, St. Peterburg, Russia
ZMHB	Museum für Naturkunde, Leibniz-Institut für Evolutions- und Biodiversitätsforschung, Berlin, Germany
ZMUC	Zoological Museum, Copenhagen, Denmark
ZMUO	Zoological Museum, Oulu, Finland
ZSM	Zoologische Staatssammlung, Munich, Germany

CHAPTER 1

Check-list of European and Macaronesian Myrmecozelinae, Perissomasticinae, Tineinae, Hieroxestinae, Teichobiinae and Stathmopolitinae

Myrmecozelinae Capuşe, 1968

Pachyarthra Amsel, 1940
181. mediterraneae (Bethune-Baker, 1894)
serotinella (Chrétien, 1915)
pallidella (Lucas, 1933)
variegata (Lucas, 1950)

Myrmecozela Zeller, 1852
Promasia Chrétien, 1905
Proctolopha Rebel, 1915
Psephologa Meyrick, 1921
Flavida Zagulajev, 1975 (as subgenus)
Dulcana Zagulajev, 1975 (as subgenus)
182. ochraceella (Tengström, 1848)
183. lutosella (Eversmann, 1844)
gigantea (Christoph, 1873) (subspecies)
centrogramma (Meyrick, 1921) (subspecies)
rjabovi Zagulajev, 1968, **syn. n.**
hyrcanella Zagulajev, 1968, **syn. n.**
carabachica Zagulajev, 1968, **syn. n.**
gajndzhiella Zagulajev, 1968, **syn. n.**
ordubasis Zagulajev, 1968, **syn. n.**
dzhungarica Zagulajev, 1971, **syn. n.**
taurella Zagulajev, 1971, **syn. n.**
pontica Zagulajev, 1971, **syn. n.**
armeniaca Zagulajev, 1971, **syn. n.**
kasachstanica Zagulajev, 1972, **syn. n.**
stepicola Zagulajev, 1972, **syn. n.**
saule Zagulajev, 1972, **syn. n.**
asariella Zagulajev, 1972, **syn. n.**
imeretica Zagulajev, 1972, **syn. n.**
samurensis Zagulajev, 1997, **syn. n.**
184. diacona Walsingham, 1907
185. ataxella (Chrétien, 1905)
deserticola Walsingham, 1907, **syn. n.**
parnassiella (Rebel, 1915), **syn. n.**
chneourella (Lucas, 1950)
hispanella Zagulajev, 1971, **syn. n.**
sordidella Zagulajev, 1975, **syn. n.**
186. lambessella Rebel, 1901
lambesella Rebel, 1901 (misspelling)
cuencella (Caradja, 1920)
cuencella Petersen, 1957 (homonym)

Non European species:
Myrmecozela mongolica Petersen, 1965
changaicus Zagulajev, 1997, **syn.n.**

Ateliotum Zeller, 1839
Dysmasia Herrich-Schäffer, 1853
Hyoprora Meyrick, 1908
Craterombris Meyrick, 1921
Hylophygas Meyrick, 1932
Metarsiora Meyrick, 1937
Saridocompsa Meyrick, 1937
187. hungaricellum Zeller, 1839
cypellias (Meyrick, 1937)
188. petrinella (Herrich-Schäffer, 1854)*
petrinella (Herrich-Schäffer, 1853) (not binominal)
turatiella (Millière, 1885)
189. insularis (Rebel, 1896)
horrealis (Meyrick, 1937)

* Concerning the exact year of Herrich-Schäffer's description see Petersen (1986a).

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190. syriaca (Caradja, 1920)
taurensis (Zagulajev, 1966)
191. arenbergeri Petersen & Gaedike, 1985
192. larseni Gaedike, 2011

Haplotinea Diakonoff & Hinton, 1956
193. ditella (Pierce & Metcalfe, 1938)
194. insectella (Fabricius, 1794)
rusticella (Hübner, 1796), nec Hübner, 1813
misella (Zeller, 1839)

Cephimallota Bruand, 1851
Cephitinea Zagulajev, 1964
Anemallota Zagulajev, 1965
Aphimallota Zagulajev, 1983
195. praetoriella (Christoph, 1872)
uralskella (Caradja, 1920)
196. colonella (Erschoff, 1874)
lignea (Butler, 1879)
agglutinata (Meyrick, 1931)
colongella (Zagulajev, 1964)
197. tunesiella (Zagulajev, 1966)
198. crassiflavella Bruand, 1851
simplicella (Herrich-Schäffer, 1851)* (not binominal)
simplicella (Zeller, 1852)
simplicella (Herrich-Schäffer, 1854)* (homonym)
199. angusticostella (Zeller, 1839)
angusticostella (Herrich-Schäffer, 1851)* (not binominal)
angusticostella (Herrich-Schäffer, 1854)* (homonym)
libanotica Petersen, 1959
hasarorum Zagulajev, 1965

Perissomasticinae Gozmány, 1965

Edosa Walker, 1866
Chrysoryctis Meyrick, 1886
Episcardia Ragonot, 1895
Cylicobathra Meyrick, 1920a
Sphallestasis Gozmány, 1959
Phalloscardia Gozmány, 1966
Bilobatana Zagulajev, 1975
Neoepiscardia Petersen & Gaedike, 1982
200. fuscoviolacella (Ragonot, 1895)
violacella Rebel, 1893, nec Haworth, 1828 (homonym)
luteocapitella (Amsel, 1935)

Crassicornella Agenjo, 1952
Tineomorpha Amsel, 1956
Petersenia Gozmány, 1960, nec Schütze, 1958
201. crassicornella (Zeller, 1847)
marianii (Turati, 1931)
202. agenjoi (Petersen, 1957)
crassicornella Agenjo, 1952, nec Zeller, 1847 (homonym)
incerta (Gozmány, 1960)

Tineinae Latreille, 1810

Ceratuncus Petersen, 1957
203. danubiella (Mann, 1866)
andalusicus Zagulajev, 1971
204. maroccanella (Amsel, 1951)
205. dzhungaricus Zagulajev, 1971
206. affinitella (Rebel, 1901)
maraschensis (Rebel, 1936)
talhouki (Amsel, 1940)
irakella (Amsel, 1949)
libanotica (Amsel, 1951)

Reisserita Agenjo, 1952
Trichocerella Zagulajev, 1956
207. zernyi Petersen, 1957
australis Gozmány, 1960
208. haasi (Rebel, 1901)
209. chrysopterella (Herrich-Schäffer, 1854)

vitellinella (Staudinger, 1859)
210. parva Petersen & Gaedike, 1979
211. latiusculella (Stainton, 1867)
212. panormitanella (Mann, 1859)
213. relicinella (Herrich-Schäffer, 1853)*
214. mauritanica (Bethune-Baker, 1885)
melitensis (Amsel, 1951)
215. flavofimbriella (Chrétien, 1925), **comb. n.**

Anomalotinea Spuler, 1910
Fermocelina Hartig, 1949
Subpentagona Agenjo, 1952
Praetinea Amsel, 1955
Cilicorneola Zagulajev, 1956
216. liguriella (Millière, 1879)
inquinatella (Zeller, 1852), nec Denis & Schiffermüller, 1775 (homonym)
severella (Zagulajev, 1956), nec Christoph, 1888 (misidentification)
christophi (Petersen, 1957)
antipai (Zagulajev, 1972)
217. gardesanella (Hartig, 1949)
218. cubiculella (Staudinger, 1859)
algiricella (Rebel, 1901) (subspecies)
recticostella (Caradja, 1920)
romeii (Turati, 1930) (subspecies)
eremica (Amsel, 1935)
occidentalis (Zagulajev, 1972)

Trichophaga Ragonot, 1894
219. tapetzella (Linnaeus, 1758)
greenlandica (Anonymous, 1834)
palaestrica (Butler, 1877)
220. scandinaviella Zagulajev, 1960
rjabovi Zagulajev, 1960
221. bipartitella (Ragonot, 1892)
desertella Mabille, 1907
amina Meyrick, 1925
222. robinsoni Gaedike & Karsholt, 2001
abruptella (Wollaston, 1858), nec Thunberg, 1794 (homonym)

Elatobia Herrich-Schäffer, 1853
Tineomima Staudinger, 1892
Abacobia Dietz, 1905, nec Lacordaire, 1866 (homonym)
Dietzia Busck, 1906
223. fuliginosella (Lienig & Zeller, 1846)
severella (Christoph, 1888)
kenteella (Staudinger, 1892)
carbonella (Dietz, 1905)
224. montelliella (Schantz, 1951)
225. bugrai Koçak, 1981
atratella (Staudinger, 1870), nec Geoffroy in Fourcroy, 1785 (homonym)

Tineola Herrich-Schäffer, 1853
226. bisselliella (Hummel, 1823)
flavifrontella (Thunberg, 1794) (homonym)
crinella (Sodoffsky, 1830)
destructor (Stephens, 1834)
lanariella (Clemens, 1859)
furciferella Zagulajev, 1954
anaphecola Gozmány, 1967

Praeacedes Amsel, 1954
Antitinea Amsel, 1955
Titaenoses Hinton & Bradley, 1956
227. atomosella (Walker, 1863)
seminolella (Beutenmüller, 1889)
thecophora (Walsingham, 1908)
despecta (Meyrick, 1919)
deluccae Amsel, 1954
deluccae (Amsel, 1955) (synonym and homonym)
malgassica (Gozmány, 1970)
decui (Capuşe & Georgesco, 1977)

Tinea Linnaeus, 1758
Acedes Hübner, 1825
Autoses Hübner, 1825
Dystinea Börner, 1925
Tineopis Zagulajev, 1960

228. flavescentella Haworth, 1828
tristigmatella Costa, 1836
229. pellionella Linnaeus, 1758
zoolegella (Scopoli, 1763)
albella Costa, 1836
demiurga Meyrick, 1920
gerasimovi Zagulajev, 1978
230. translucens Meyrick, 1917
metonella Pierce & Metcalfe, 1934
leonhardi Petersen, 1957
margaritacea Gozmány, 1968
fortificata Gozmány, 1968
231. murariella Staudinger, 1859
bipunctella (Ragonot, 1874)
232. lanella Pierce & Metcalfe, 1934
233. messalina Robinson, 1979
234. dubiella Stainton, 1859
turicensis Müller-Rutz, 1920
bispinella Zagulajev, 1960
tenerifi Zagulajev, 1966
235. steueri Petersen, 1966
236. bothniella Svensson, 1953
unidentella Zagulajev, 1960
sibiriella Zagulajev, 1960
237. basifasciella Ragonot, 1895
punctigera Walsingham, 1907
nitentella Chrétien, 1908
punctigera palaestinella Amsel, 1955
rostrata Petersen, 1966, **syn. n.**
238. columbariella Wocke, 1877
latro Meyrick, 1931
239. svenssoni Opheim, 1965
240. pallescentella Stainton, 1851
coacticella Zagulajev, 1954
nigrifoldella Gregson, 1856
241. omichlopis Meyrick, 1928
nonimella (Zagulajev, 1955)
242. semifulvella Haworth, 1828
243. trinotella Thunberg, 1794
lapella Hübner, 1799, nec Denis & Schiffermüller, 1775 (homonym)
ganomella Treitschke, 1833

Niditinea Petersen, 1957
Tineidia Zagulajev, 1960
244. fuscella (Linnaeus, 1758)
spretella (Denis & Schiffermüller, 1775)
crinitella (Schrank, 1802)
fuscipunctella (Haworth, 1828)
nubilipennella (Clemens, 1859)
abligatella (Walker, 1863)
frigidella (Packard, 1867)
griseella (Chambers, 1873)
eurinella (Zagulajev, 1952)
distans (Gozmány, 1959)
245. striolella (Matsumura, 1931)
semidivisa (Meyrick, 1934)
piercella (Bentinck, 1935)
ignotella (Zagulajev, 1956)
distinguenda Petersen, 1957
pacifella (Zagulajev, 1960)
246. baryspilas (Meyrick, 1937), **stat. rev.**
unipunctella (Zagulajev, 1960)
247. truncicolella (Tengström, 1848)
rosenbergerella (Nolcken, 1871)

Proterospastis Meyrick, 1937
Paratinea Petersen, 1957
248. merdella (Zeller, 1852)
siccanella (Chrétien, 1915)
quadruplella (Caradja, 1920), **syn.n.**
atriensis (Meyrick, 1925)
palaestinella (Amsel, 1935)
249. autochthones (Walsingham, 1907)
tripolitella (Rebel, 1908), **syn. n.**
250. orientalis (Petersen, 1959)

Ceratobia Zagulajev, 1974
251. ratjadae Passerin d'Entrèves, 1978
252. oxymora (Meyrick, 1919)

Metatinea Petersen & Gaedike, 1979
253. immaculatella (Rebel, 1892)

Phereoeca Hinton & Bradley, 1956
254. allutella (Rebel, 1892)
verna (Meyrick, 1924)
255. lodli Vives, 2001

Montetinea Petersen, 1957
256. tenuicornella (Klimesch, 1942)
257. montana Petersen, 1957

Monopis Hübner, 1825
Blabophanes Zeller, 1852
Hyalospila Herrich-Schäffer, 1853
Rhitia Walker, 1864
Eusynopa Lower, 1903
Monopina Zagulajev, 1955, nomenclaturally unavailable
Monopina Zagulajev, 1960
258. laevigella (Denis & Schiffermüller, 1775)
rusticella (Hübner, 1813), nec Hübner, 1796, homonym
vestianella (Stephens), 1835
259. weaverella (Scott, 1858)
semispilotella (Strand, 1900)
nigripilella Réal, 1989
260. neglecta Šumpich & Liska, 2011
261. spilotella (Tengström, 1848)
biflavimaculella (Clemens, 1859)
262. burmanni Petersen, 1979
bisonella Šumpich, 2011
263. luteocostalis Gaedike, 2006
264. obviella (Denis & Schiffermüller, 1775)
splendella (Denis & Schiffermüller, 1775)
ferruginella (Hübner, 1813), nec Thunberg, 1788 (homonym)
ustella (Haworth, 1828)
265. crocicapitella (Clemens, 1859)
amandatella (Walker, 1863)
hyalinella (Staudinger, 1870)
lombardica (Hering, 1889)
heringi (Richardson, 1893)
ptilophaga (Enderlein, 1908)
cecconii Turati, 1919
dobrogica Georgesco, 1964
266. imella (Hübner, 1813)
nitidella Zagulajev, 1960
267. nigricantella (Millière, 1872)
268. henderickxi Gaedike & Karsholt, 2001
269. christophi Petersen, 1957
straminella Zagulajev, 1958
270. pallidella Zagulajev, 1955
orghidani Georgesco, 1964
271. barbarosi (Koçak, 1981)
irrorella (Wollaston, 1858), nec Hübner, 1796 (homonym)
272. fenestratella (Heyden, 1863)
273. monachella (Hübner, 1796)
monacha Zagulajev, 1972

Unattributed to subfamily

Pelecystola Meyrick, 1920
Zularcha Meyrick, 1937
Neurozestis Meyrick, 1938
274. fraudulentella (Zeller, 1852)

Hieroxestinae Meyrick, 1893

Opogona Zeller, 1854
Lozostoma Stainton, 1859a
Conchyliospila Wallengren, 1861
Cachura Walker, 1864
Dendroneura Walsingham, 1892
Hieroxestis Meyrick, 1893
Exala Meyrick, 1912
275. sacchari (Bojer, 1856)
subcervinella (Walker, 1863)
sanctaehelenae (Walker, 1875)
ligniferella (Walker, 1875)
plumipes (Butler, 1876)

276. omoscopa (Meyrick, 1893)
strassenella (Enderlein, 1903)
apicalis Swezey, 1909
praematura (Meyrick, 1909)

Wegneria Diakonoff, 1951
277. panchalcella (Staudinger, 1871)
cavernicola Diakonoff, 1951

Oinophila Stephens, 1848
Oenophila Dunning & Pickard, 1859 (unjustified emendation)
278. v-flava (Haworth, 1828)
flavofasciella (Duponchel, 1844)
vau-flava (Heydenreich, 1851) (misspelling)
279. nesiotes Walsingham, 1908

Amphixystis Meyrick, 1901
Gephyristis Meyrick, 1909a
Sporadarthra Meyrick, 1911
Ulocorys Meyrick, 1915
Coeliometopa Turner, 1923
Machimostola Meyrick, 1928
Orthochtha Meyrick, 1928, nec Karsch, 1891
Problastodes Meyrick, 1928
Orthochtherella Fletcher, 1940
280. undosa (Walsingham, 1908)

Teichobiinae Heinemann, 1870

Teichobia Herrich-Schäffer, 1853
Teichobia Herrich-Schäffer, 1853
Psychoides Bruand, [1854]
Psychoides Bruand, [1851] (nomenclaturally unavailable)
Lambrosetia Stainton, 1854
Mnesipatris Meyrick, 1935
281. filicivora (Meyrick, 1937)
282. verhuella (Bruand, [1854])
verhuellella (Stainton, 1854)

Stathmopolitinae Sauter, 1985

Stathmopolitis Walsingham, 1908

283. tragocoprella Walsingham, 1908

Addition.
284. Tinea hongorella Zagulajev, 1975
285. Oinophila blayi Vives & Gastón, 2017

CHAPTER 2

Systematic Treatment of the Genera and Species of the European Tineidae (Part II)

Myrmecozelinae

Myrmecozelinae Capuşe, 1968 [March 15]: 137.

Type-genus: *Myrmecozela* Zeller, 1852.

Myrmecozelinae Zagulajev, 1968 [after March 26]: 220.

Type-genus: *Myrmecozela* Zeller, 1852.

Haplotineini Zagulajev, 1963: 371.

Type-genus: *Haplotinea* Diakonoff & Hinton, 1956.

Ceratuncini Capuşe, 1964: 93.

Type-genus: *Ceratuncus* Petersen, 1957.

Cephimallotini Zagulajev, 1965: 386.

Type-genus: *Cephimallota* Bruand, 1851.

Rhodobatinae Capuşe, 1968: 73.

Type-genus: *Rhodobates* Ragonot, 1895.

Ateliotini Zagulajev, 1975b: 202.

Type-genus: *Ateliotum* Zeller, 1839.

Protaphreutini Capuşe, 1971: 232.

Type-genus: *Protaphreutis* Meyrick, 1922.

Syncalypsini Capuşe, 1971: 234.

Type-genus: *Syncalypsis* Gozmány, 1965b.

Hilaropterini Capuşe, 1971: 234.

Type-genus: *Hilaroptera* Gozmány, 1969.

Phthoropoeinae Gozmány & Vári, 1973: 10.

Type-genus: *Phthoropoea* Walsingham, 1896.

Remarks. Date of issue of the paper of Zagulajev is not earlier than 26th of March (date of permission for issue of part I of the journal on inside of the cover page).

Pachyarthra Amsel, 1940

Pachyarthra Amsel, 1940: 55.

Type species: *Amydria ochroplicella* Chrétien, 1915.

Description. Medium-sized species with wingspan from 15–30 mm, females larger than males. Pattern on forewing often very variable. Antenna: segments of flagellum clearly broader than long, males with thicker antenna than females. Separated from the other genera of the subfamily, especially from *Myrmecozela*, by characteristic structures in the genitalia.

Male genitalia. Uncus with two long socii, gnathos arms angled before 1/2, vinculum more or less narrow, without saccus; valva parallel, last third narrowing to a more or less pointed apex; phallus nearly right-angled.

Female genitalia. Anterior apophyses short, unforked, oviscapt short too.

Distribution. In the Palaearctic Region from North Africa to Nepal with 11 species (one species known from East Sudan), one species is known from Europe.

Bionomics. Nothing is known about the early stages.

Remarks. A first revision of the genus was given by Petersen (1965a).

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181 *Pachyarthra mediterraneae* (Bethune-Baker, 1894)

Scardia mediterraneae Bethune-Baker, 1894: 50, pl. 1: No. 21.

Myrmecozela serotinella Chrétien, 1915: 374.

Tineola pallidella Lucas, 1933: 199.

Euplocera variegata Lucas, 1950: 143.

Description. Wingspan 15–19 mm (♂), 22–24 mm (♀); head brush from creamy white to light yellowish brown, labial palpus straight, second segment with long scales, directed downwards, third segment short, pointed; antenna creamy white; thorax and tegulae greyish-brown, tips of tegulae creamywhite. Forewing greyish-brown with a pale yellowish pattern: along costa a row of pale yellow spots, the apical quarter of costa with four short stripes, separated by brown scales, a row of four patches from base along cell to begin of fringe at dorsum, the smallest patch at base, between each patch dark brown scales; two larger patches at the end of cell and before apex, termen pale yellow and brown chequered, fringe yellowish and brown mixed; hindwing grey.

Male genitalia. Uncus with two long, bristled, nearly straight socii, apically pointed; gnathos arms with pointed angle before 1/2, basally broader, narrower to pointed tip; vinculum band-shaped; valva enlarged, costal and ventral edge each convex, ventral edge in last third narrower to pointed tip, apodeme long, on inside of valva, in the first half a bristled area, somewhat more strongly sclerotized, another area with longer bristles before apex, costal edge from apodeme to apex more strongly sclerotized; phallus about half of the length of valva, right-angled before 1/2, apical part somewhat curved below, narrower to pointed tip.

Female genitalia. Anterior apophyses short, broad, segment VIII more or less square, nearly touching in the middle, connected with an area of minute sclerotized thorns; ostium lip more strongly sclerotized, half ring-shaped, situated in a net-like structure.

Variation. Some specimens (collected in Libya, fig. 181b) much lighter, the patches white, fringe white, hindwing white too, or nearly complete brown to dark brown, only the patches at the end of cell and before apex are more or less visible, along costa numerous short dark brown stripes; fringe with dark brown scale-line; hindwing covered with brown scales (Spain, fig. 181c).

Similar species. Superficially not clearly distinguishable from *P. ochroplicella* (Chrétien, 1915) and *P. lividella* (Chrétien, 1915), both distributed in North Africa. Clear differences are visible only in the genitalia structure, mainly of males (shape of valva and of phallus).

Distribution. In Europe recorded only from Spain (Prov. Sevilla: Trebujena), outside Europe known form North Africa (Egypt, Libya, Tunisia, Algeria, Morocco), Israel.

Bionomics. Larval pabulum unknown. The specimens were collected between August and November.

Myrmecozela Zeller, 1852

Myrmecozela Zeller, 1852: 103.

Type species: *Tinea ochraceella* Tengström, 1848.

Promasia Chrétien, 1905: 257.

Type species: *Promasia ataxella* Chrétien, 1905.

Proctolopha Rebel, 1915: 56.

Type species: *Proctolopha parnassiella* Rebel, 1915.

Psephologa Meyrick, 1921a: 474.

Type species: *Psephologa centrogramma* Meyrick, 1921.

Flavida Zagulajev, 1975b: 326.

Type species: *Tinea lutosella* Eversmann, 1844.

Dulcana Zagulajev, 1975b: 364.

Type species: *Myrmecozela diacona* Walsingham, 1907.

DESCRIPTION. Medium-sized species with wingspan from 13–27 mm. The coloration mostly from light yellowish colored to brown, forewings often with a pattern of small dark dots. Females on tip of abdomen with a brush of long scales.

MALE GENITALIA. Characteristically having uncus with two socii, a ring-shaped tegumen-vinculum complex, a more or less parallel sided valva with truncate apex with serrated edge and a almost half-moon-shaped phallus with pointed tip. The shape of teeth on truncate apical edge and the wrinkled structures inside the valva often varies intraspecifically.

FEMALE GENITALIA. Between anterior apophyses with sclerotized rod, characteristic antrum and with a rod-shaped signum. The intraspecific variability was the reason for the description of a lot of taxa. Recent study shows that most of them become synonyms (see below).

DISTRIBUTION. Recently seven species are known from the Palaearctic Region and one species from the Afrotropics.

BIONOMICS. *Myrmecozela* species predominately inhabit arid steppe and desert regions. Life histories are known only from two species. Chrétien (1905) described in detail eggs, larvae and pupae of *Promasia ataxella*, and recorded two generations in southern France. Larvae of *M. ochraceella* are associated with nests of wood ants (see below). A compilation of the knowledge about life histories of the genus is given by Robinson (2009).

REMARKS. A revision of the Palaearctic species was given by Petersen (1965b).

182 *Myrmecozela ochraceella* (Tengström, 1848)

Tinea ochraceella Tengström, 1848: 111.

DESCRIPTION. Wingspan 12–20 mm; head brush from neck to the middle (insertion of antennae) yellow-brown, apically lighter, labial palpus outside yellow-brown, inside lighter, straight, second segment with long scales, directed downwards, with some long bristles, third segment short, pointed; scape of antenna yellow-brown, flagellum dark-grey; thorax, tegulae and forewing yellow-brown, without any pattern; hindwing grey, fringe lighter.

MALE GENITALIA. Uncus with two slightly curved socii, apically rounded, connected in the last half; basally each with a small rounded bristled process; valva more or less parallel, with long curved apodeme, ventral edge enlarged at base, than concave to truncate apex, costal edge concave, apically with pointed tooth; basal part of the inside of valva with variable and complicated folded and wrinkled

structures, below the apodeme ending in a rounded process. Phallus characteristic for the genus, basally short forked, apically pointed.

Female genitalia. Posterior edge of segment VIII lunate indented; antrum without any additional sclerotizations; signum long rod-shaped, with more strongly sclerotized keel.

Variation. The coloration varies from light yellowish (fig. 182b) to light brown (fig. 182c). In male genitalia, the size and the shape of teeth on truncate apex of the valva are variable, the forked base of phallus also varies somewhat.

Similar species. Distinguishable from the other members of the genus superficially by lacking any pattern on forewings; in the genitalia the pointed tip of phallus is characteristic.

Distribution. Nearly all Europe, eastwards up to North European Russia.

Bionomics. Larva in nests of *Camponotus* sp., *Formica rufa, F. pratensis* (records from studied material as well as Schütze, 1931; Viette, 1957; Zagulajev, 1981). Pelham-Clinton (1985) provides observations on larvae: " [larvae] in a loose tube amongst debris at the edge of nests of the wood-ants *Formica aquilonia* or *F. lugubris* (*on the Continent stated to be in F. rufa nests*), feeding, according to Donisthorpe (1927), on the material of the nest… [Adults] becoming active about dusk, when moths may be found resting on grass blades around the ants' nests. During the day the moth remains inside the nest and may sometimes be made to fly out by tapping with the nest with a stick." According to Marko Mutanen (pers. comm.) in Finland adults can be found in the morning resting on grasses around the nest. One year 150 specimens were collected this way. The males are rarely seen swarming because this happens in early morning sunshine. Adults have been collected between June and the end of July.

183 *Myrmecozela lutosella* (Eversmann, 1844)

Tinea lutosella Eversmann, 1844: 535.
Tineola gigantea Christoph, 1873: 49.
Psephologa centrogramma Meyrick, 1921a: 475.
Myrmecozela insignis Amsel, 1935: 315, pl. 10, fig. 74.
Cronodoxa stichograpta Meyrick, 1936: 54.
Myrmecozela rjabovi Zagulajev, 1968b: 349, figs. 19–21, **syn. n.**
Myrmecozela hyrcanella Zagulajev, 1968b: 352, figs. 22–23, **syn. n.**
Myrmecozela carabachica Zagulajev, 1968b: 355, figs. 24–25, **syn. n.**
Myrmecozela gajndzhiella Zagulajev, 1968b: 357, figs. 26–27, **syn. n.**
Myrmecozela ordubasis Zagulajev, 1968b: 359, figs. 28–29, **syn. n.**
Myrmecozela dzhungarica Zagulajev, 1971a: 420, figs. 5–6, **syn. n.**
Myrmecozela taurella Zagulajev, 1971a: 422, fig. 7, **syn. n.**
Myrmecozela pontica Zagulajev, 1971a: 424, fig. 9, **syn. n.**
Myrmecozela armeniaca Zagulajev, 1971b: 179, fig. 1, **syn. n.**
Myrmecozela kasachstanica Zagulajev, 1972a: 14, fig. 1, **syn. n.**
Myrmecozela stepicola Zagulajev, 1972a: 15, fig. 2, **syn. n.**
Myrmecozela saule Zagulajev, 1972a: 17, figs. 3–4, **syn. n.**

Myrmecozela imeretica Zagulajev, 1972a: 18, fig. 5, **syn. n.**
Myrmecozela asariella Zagulajev, 1972a: 19, fig. 6, **syn. n.**
Myrmecozela samurensis Zagulajev, 1997: 783, fig. 3, **syn. n.**

DESCRIPTION. Wingspan 20–22 mm (*lutosella* s. str.), 21–24 mm (ssp. *gigantea*), 16–25 mm (ssp. *centrogramma*). Head brush light yellowish brown, labial palpus short, straight, scape of antenna yellowish brown, flagellum somewhat ringed. Thorax and tegulae with same coloration as head brush, apical half lighter. Forewing light brown to yellowish, the apical half darker, with a pattern of small dark greyish brown dots: a row along dorsum, from beginning of fringe to apex a little larger and enlarged as stripes to apex of cell; a second row (appr. six dots) from base along cell; some minute dots below costa. Hindwing shiny light grey.

MALE GENITALIA. Uncus-tegumen-vinculum complex and valva shaped as in the previous species, the basal part of the inside of valva with variable and complicated folded and wrinkled structures, truncate apex with longer tooth dorsally and some smaller teeth ventrally; shape of phallus characteristic for the genus, needle-shaped.

FEMALE GENITALIA. Posterior edge of segment VIII deeply indented, antrum weakly developed, only with minute wrinkled sclerotizations; signum long rod-shaped, the anterior end often pointed.

VARIATION. Some specimens with yellow head brush and light yellow forewing with only some darker scales along cell (fig. 183b), some specimens without any pattern on forewing or with last quarter of forewing overlaid with darker scales (ssp. *gigantea*). Ssp. *centrogramma* distinguishable by having a pattern of some rows of dark scales on a whitish forewing.

SIMILAR SPECIES. Superficially distinguishable from *M. ochraceella* by having rows of dark dots on forewing, from *M. diacona* by coloration of forewing (light brown to yellowish instead of whitish with light brown covered veins), from *M. ataxella* by different pattern of forewing. *M. lutosella* is clearly different by the needle-shaped tip of phallus in males and antrum without clear structures.

DISTRIBUTION. The nominotypical subspecies occurs in the European part of Russia, Ukraine, Bulgaria, outside Europe as subspecies *centrogramma* (Meyrick, 1921) from Middle East (Jordania, Israel, Syria, Iraq, Iran, Turkey) and as subspecies *gigantea* (Christoph, 1873) from the Caucasus to Middle Asia, Mongolia (Petersen, 1973b) and China (Zagulajev, 1971a).

New record: Bulgaria, 1♀, Rila Mts, Kirilova Polyana, 14km E Rila Monasteri, 1.viii.2013, leg. K. Larsen & E. Vesterhede, ZMUC.

BIONOMICS. Larval pabulum unknown. Adults have been collected between the middle of May and the end of June.

REMARKS. The original descriptions of species group names by Zagulajev as listed above under *M. lutosella* are based in most cases on only one or two specimens. Such a small type series can not display the intraspecific variability of external and genitalia characters, which is characteristic for *Myrmecozela* species. Zagulajev's descriptions are within the range of this infraspecific variation regarding size and shape of teeth on truncate apex of valva as well as the wrinkled structures inside the

valva. This is why these taxa are synonymized with *M. lutosella* herewith.

The original description of *M. asariella* was published twice: in Zagulajev, 1972a: 19, fig. 6 and in Zagulajev 1972b: 354, fig. 22.

184 *Myrmecozela diacona* Walsingham, 1907

Myrmecozela diacona Walsingham, 1907: 152.

Description. Wingspan 22–27 mm; head brush light ochreous, labial palpus short, straight, with long scales directed downwards, with some long bristles, last segment pointed; antenna light ochreous, scape with pecten; light ochreous colored thorax, tegulae and forewing. Forewing on the ground colourwith a pattern of dark dots, arranged in rows: the first row below costa from base to apex, in the first quarter as line, the second one from base to 1/2 below cell, the dots are connected nearly as row, the third one from base to apex along dorsum; the veins covered with light brown scales, fringe with two dark scalelines; hindwing shiny whitish.

Male genitalia. The genitalia characteristic for the genus, socii of uncus angled at 1/2, with somewhat pointed tip; valva on inside of the enlarged basal part with clear fold and numerous wrinkles; phallus with pointed tip, below the tip a minute tooth.

Female genitalia. Posterior edge of segment VIII lunar indented, antrum funnel-shaped, more strongly sclerotized, signum with clear visible keel.

Variation. Superficially, no variability is shown. In male genitalia the shape of truncate apex of valva with variable number of teeth (fig. 184a); in female genitalia the shape of antrum varies (fig. 184a).

Similar species. The rows of dark dots on forewing make the species distinguishable from the other species of the genus, in the male genitalia the minute subapical tooth of the phallus is characteristic. Female genitalia hardly distinguishable from *M. ataxella*.

Distribution. The record in Europe from Spain: Burgos (Gastón & Vives Moreno, 2000) is doubtful; outside Europe known form North Africa (Algeria, Tunisia, Morocco).

Bionomics. Larval pabulum unknown, the adults were collected in North Africa between March and May.

Remarks. Occurrence in Spain needs confirmation.

185 *Myrmecozela ataxella* (Chrétien, 1905)

Promasia ataxella Chrétien, 1905: 258, fig. 2.

Myrmecozela deserticola Walsingham, 1907: 192, **syn. n.**

Proctolopha parnassiella Rebel, 1915: 56, figs. 2–4, **syn. n.**

Tineola chneourella Lucas, 1950: 143

Myrmecozela hispanella Zagulajev, 1971a: 425, fig. 10, **syn. n.**

Myrmecozela sordidella Zagulajev, 1975b: 384, figs. 293–294, **syn. n.**

Description. Wingspan 15–24 mm; head brush light yellow-brown, labial palpus straight, second segment with long scales, directed obliquely apically, with some bristles, third segment short, pointed; scape of antenna with same coloration,

with pecten, flagellum more greyish; thorax and tegulae and forewing light yellow-brown, forewing with pattern of dark brown dots: a row of small dots from base to 1/2 below cell, ending in a larger patch, another row of small dots along dorsum from base to apex, some minute dark dots scattered on forewing, fringe apically with a darker yellow-brown scale-line; hindwing white.

Male genitalia. The genitalia are characteristic for the genus, socii of uncus with pointed tip; valva on inside of the enlarged basal part with fold and some wrinkles, more or less continuously narrower from base to apex, phallus with somewhat rounded tip.

Female genitalia. Posterior edge of segment VIII deeply indented, antrum funnel-shaped, dorsally more or less clear rounded lobes, signum rod-shaped, with keel, basally often pointed.

Similar species. Superficially distinguishable from the other members of the genus by having a more or less clear visible dark patch at 1/2 below cell. In male genitalia, the shape of valva (continuously narrower from base to apex) and the more or less rounded tip of phallus are characteristic. In female genitalia the funnel-shaped antrum shorter than antrum in *M. diacona*.

Variation. In some specimens the pattern is more developed, the patch at 1/2 below cell and the dots along dorsum are much larger, an additional row along costa is visible, fringe with scattered darker scales (fig. 185b); some specimens with more brown coloration, the dark patch and dots are more clearly visible (fig. 185c), other specimens with yellowish-brown forewing with darker brown costa from base to 1/2 and with two scale-lines on fringe (fig. 185d), sometimes the larger patch on forewing is not visible, the entire forewing with scattered dark dots (fig. 185e).

Distribution. Iberian Peninsula, Canary Island Fuerteventura, Balearic Island Mallorca, France, Italy, Macedonia, Greece (incl. Crete), Cyprus, Bulgaria, outside Europe known from North Africa (Morocco, Algeria, Tunisia, Libya), Jordan, Turkey.

Bionomics. Larval pabulum unknown. Adults have been collected between March and October (certainly in two generations).

Remarks. Caradja (1920) described under the name *Promasia ataxella* an "ab. *sordidella* Chrét." from Gafsa (Algeria). The name *sordidella* is not available (ICZN, 45.6.2.). Zagulajev (1975) used this name in the combination "*Myrmecozela* (*Promasia*) *sordidella* Car.", and described and illustrated this taxon, with reference to Caradja (1920). This description made the name *sordidella* available, but with the author name Zagulajev, 1975b. The comparison of the descriptions and of the genitalia structures shows, that this taxon together with *M. hispanella*, *M. deserticola* and *M. parnassiella* are synonyms of *M. ataxella*.

186 *Myrmecozela lambessella* Rebel, 1901

Myrmecozela lambesella [sic!] Rebel, 1901: 185.

Eriocottis cuencella Caradja, 1920: 173.
Myrmecozela lambessella cuencella Petersen, 1957c: 581, fig. 233 [right part](homonym).

DESCRIPTION. Ssp. *lambessella* s. str.: Wingspan 17–23 mm; head brush light yellowish-brown, labial palpus short, straight, second segment with long scales, directed oblique apically, with numerous bristles, third segment pointed; antenna greyish brown, scape with pecten; thorax, tegulae and forewing yellow, forewing without any pattern; hindwing light grey.

MALE GENITALIA. Uncus-tegumen-vinculum complex characteristic for the genus, valva stout, basally two times broader than apically, apex of phallus ventrally serrate.

FEMALE GENITALIA. Posterior edge of segment VIII deeply indented, antrum narrow, somewhat funnel-shaped, posterior edge more or less round, signum basally with needle-shaped tip, narrower from base to posterior end.

VARIATION. Ssp. *cuencella*: Wingspan 19–22 mm; head brush yellowish-brown, scape of antenna ringed; thorax, tegulae and forewing light grey-brown, forewing without any pattern.

SIMILAR SPECIES. The coloration without any pattern on forewing distinguishes the species from the other members of the genus. In male genitalia the serrate ventral edge of tip of phallus and in female genitalia the needle-shaped basal tip of signum are characteristic.

DISTRIBUTION. The typical subspecies is known from Spain (Canary Island Gran Canaria), outside Europe known from Mauretania, Algeria, Tunisia, the ssp. *cuencella* is known only from Spain (Cuenca; Murcia (Petersen & Gaedike, 1992); València (Dominguez & Baixeras, 1995; Dominguez, 1996)).

BIONOMICS. Larval pabulum unknown, adults were collected in Spain in June.

REMARKS. The species name *lambesella* is an incorrect original spelling, as the naming refers to the type location Lambessa.

Myrmecozela mongolica Petersen, 1965

Myrmecozela mongolica Petersen, 1965b: 107, fig. 1.

Myrmecozela changaicus Zagulajev, 1997: 780, figs. 1–2, **syn. n.**

While studying this genus, non-European species were also checked. As a result, *Myrmecozela changaicus* Zagulajev, 1997 syn. n. is a new synonym of *Myrmecozela mongolica* Petersen, 1965. The species occurs in the Eastern Palaearctic and does not occur in Europe.

Ateliotum Zeller, 1839

Ateliotum Zeller, 1839: 189.

Type species: *Ateliotum hungaricellum* Zeller, 1839.

Dysmasia Herrich-Schäffer, 1853: 23.

Type species: *Dysmasia petrinella* Herrich-Schäffer, 1854.

Hyoprora Meyrick, 1908: 754.

Type species: *Hyoprora crymodes* Meyrick, 1908.

Craterombris Meyrick, 1921b: 127.

Type species: *Craterombris reluctans* Meyrick, 1921.

Hylophygas Meyrick, 1932a: 119.

Type species: *Hylophygas convicta* Meyrick, 1932.

Metarsiora Meyrick, 1937a: 76.

Type species: *Metarsiora horrealis* Meyrick, 1937.

Saridocompsa Meyrick, 1937b: 113.

Type species: *Saridocompsa cypellias* Meyrick, 1937.

DESCRIPTION. Medium-sized species (wingspan 10–20 mm); head brush creamy white or white, antenna with clearly separated segments on flagellum, flagellum ciliate, scape with pecten, labial palpus straight, second segment with long scales, bristled.

MALE GENITALIA. Uncus with characteristic cone-shaped or pointed socii; between the socii always visible a praescapium; without gnathos, vinculum divided into two saccus arms, valva with long apodemes, phallus sometimes apically enlarged.

FEMALE GENITALIA. Tip of abdomen with a brush of long scales; posterior apophyses forked, ostium lip with sclerotizations, signum more or less hyaline, conical.

DISTRIBUTION. Currently 16 known species: in the Palaearctic 12 species and in the Afrotropical region four species. In Europe, six species are known.

BIONOMICS. Almost nothing is known of the life history, only Zagulajev (1975b) recorded some details for *A. hungaricellum* (see below).

REMARKS. The genus was revised by Petersen (1988b).

187 *Ateliotum hungaricellum* Zeller, 1839

Ateliotum hungaricellum Zeller, 1839: 189.
Saridocompsa cypellias Meyrick, 1937b: 113.

DESCRIPTION. Wingspan 11–20 mm; head brush white, labial palpus on inside white, outside overlaid with light brown scales, second segment with long scales and some lateral bristles; scape and the basal segments of flagellum white, cilia nearly as long as one segment, pecten consists of appr. 10 bristles; thorax and tegulae white, overlaid with some light brown scales; forewing on white ground colour with a pattern of light and darker brown patches and stripes, the edges of patches with a line of darker scales; costa with darker brown patch on the first fifth, four smaller patches between 1/2 and apex, and at 1/3 an oblique stripe, directed to dorsum; additional darker brown patches are situated basally at beginning of cell, at the end of cell, connected with the oblique stripe, and along the termen; fringe with brown scale-line; the white area between the darker patches partly overlaid with light brown scales; hindwing light grey.

MALE GENITALIA. Uncus with two pointed socii, the edge between these more strongly sclerotized, vinculum with two short saccus arms; valva with big apodeme, more or less parallel-sided, costal edge ending in a short, rounded, ventrally curved process, protruding the ventral edge of valva; phallus nearly as long as valva, from truncate base to apex somewhat narrower, subapically with a strong sclerotized serrate pointed process,

FEMALE GENITALIA. Ostium lip more strongly sclerotized, shield-shaped, apically rounded.

VARIATION. Forewing of some specimens overlaid with more brown scales, the pattern is not so clearly visible (fig. 187b), sometimes the forewing is more completely overlaid with light brown scales, the patches are separated by white lines (fig. 187c), sometimes on forewing only some light brown patches, thorax and tegulae completely white (fig. 187d). In

female genitalia the ostium lip sometimes apically more or less triangular or somewhat truncate (figs. 187a–187c).

Similar species. The coloration and the pattern on forewing make this species clear distinguishable from the other members of the genus.

Distribution. Entire Mediterranean region, in Central Europe north to Germany and Poland, eastwards to the European part of Russia; outside Europe known from Turkey through the Caucasus to Middle Asia (Iran, Kazakhstan, Tajikistan).

Bionomics. Eggs are laid in patches, overlaid with silk. Larvae live in silken tubes between dead roots of several plants (Zagulajev, 1975b). Adults have been collected in June and July.

188 *Ateliotum petrinella* (Herrich-Schäffer, 1854)

Dysmasia petrinella Herrich-Schäffer, 1854: 80.

Dysmasia petrinella Herrich-Schäffer, 1853: fig. 633 (not binominal).
Tinea turatiella Millière, 1885: CXI.

Description. Wingspan 10–17 mm; head brush from creamy white to light brown, laterally somewhat darker; labial palpus also creamy white, the long scales on second segment dark, second segment bristled, third segment short; scape of antenna with pecten, flagellum grey brown; thorax and tegulae creamy white, overlaid with dark brown scales; forewing with creamy white ground coloration, with pattern of scattered dark brown or nearly black dots: dark brown are base of costa and some short stripes between base and apex, one dot at beginning and another at end of cell, two dots, one below the other, before 1/2 in the middle of wing, some smaller patches on termen; the entire forewing overlaid with light brown scales; hindwing light grey.

Male genitalia. Uncus with two straight pointed socii, basally on inside each with short strong sclerotized thorn, vinculum with two long, narrow, edged saccus arms; valva with long apodeme, costa lengthwise folded, hook-shaped apically, ventral edge shorter than costa, apex lunar truncate; phallus as long as valva, thin, basally broader, with minute thorns in the vesica.

Female genitalia. Ostium lip indented V-shaped in the middle, first part of ductus bursae somewhat more strongly sclerotized, signum conical, with minute sclerotizations at edges and at about six transverse rods.

Variation. Some specimens with darker brown coloration, forewing with more pronounced stripes on costa, the two dots in the middle connected to a stripe (fig. 188b); some specimens with lighter coloration (fig. 188c).

Similar species. The lighter coloration superficially distinguishes the species from *A. insulare*, in male genitalia clear differences present in shape of uncus, valvae and phallus, in female genitalia the ostium lip is clearly different.

Distribution. Iberian Peninsula, Canary Islands, France, Italy, Croatia (unpublished records), Greece, outside Europe known from Tunisia and Turkey (Koçak, & Kemal, 2006). The ssp. *orientale* Petersen, 1973a is known from Iran and Afghanistan.

New records. Croatia, 2♂, Krk Island, Pinezici, 5.ix.2011, leg. B. May, coll. Keller.

BIONOMICS. Larval pabulum unknown, adults were collected between the end of April and beginning of October (two generations).

189 *Ateliotum insularis* (Rebel, 1896)

Dysmasia insularis Rebel, 1896: 125, pl. III, fig. 9.

Metarsiora horrealis Meyrick, 1937a: 76.

DESCRIPTION. Wingspan 9–17 mm; head brush creamy white, between antennae darker; second segment of labial palpus on inside creamy white, on outside darker, with long scales, bristled, third segment short, on both sides dark; antenna dark grey-brown, scape with pecten; thorax and tegulae creamy white, overlaid with dark scales; forewing on creamy coloration with a pattern of dark-brown patches and stripes: dark brown are on costa the basal third and four short stripes from 1/2 to apex, a narrow band along fringe on termen, one patch at the end of cell, an oblique stripe from beginning of cell to dorsum and an oblique patch from base to dorsum; fringe with scattered dark scales, the lighter areas on entire forewing overlaid partly with darker scales too; hindwing light grey.

MALE GENITALIA. Uncus with two forked socii, the outside arm longer than the inside arm, curved outwards, pointed, the inside arm more strongly sclerotized; vinculum with two more or less triangular saccus arms; valva with long apodeme, from base narrower to apex with short finger-shaped apex, on inside of base a curved fold, subapically an U-shaped sclerotization; phallus straight, apex forked, base of the fork laterally enlarged, more strongly sclerotized.

FEMALE GENITALIA. Ostium lip U-shaped indented, basal edge wrinkled, laterally square plates, ventral arms of anterior apophyses prolonged, bristled.

VARIATION. Sometimes the dark brown patches and stripes on forewing enlarged (fig. 189b), sometimes forewing at dorsum from base to beginning of fringe white with only few darker scales (fig. 189c).

SIMILAR SPECIES. The coloration of forewing is darker than in *A. petrinella*, clear differences are seen in the genitalia structures.

DISTRIBUTION. Portugal, Spain (incl. Balearic and Canary Islands), Gibraltar (Perez, 2009); France (Varenne & Nel, 2008), Malta, Italy: Sicily.

BIONOMICS. Larval pabulum unknown. Adults were collected between May and July, on Canary Islands in February, May and between July and August.

190 *Ateliotum syriaca* (Caradja, 1920)

Dysmasia syriaca Caradja, 1920: 172.

Ateliotum taurensis Zagulajev, 1966: 156, figs. 10–12.

DESCRIPTION. Wingspan 11–17 mm; head brush creamy white, laterally darker; labial palpus inside creamy white, outside darker, second segment with long scales, bristled, third segment short, pointed; scape of antenna with pecten; thorax and tegulae creamy white, basally overlaid with darker scales; forewing on creamy white ground with a pattern of dark brown patches: dark brown are some short broad stripes on costa between dark base and

apex, a larger patch at end of cell, and a scale-line at base of fringe; fringe covered with scattered dark scales; dorsum from base to beginning of fringe nearly without any dark scales; hindwing light grey.

Male genitalia. Uncus with two long, thin, slightly curved pointed socii, vinculum without saccus arms, only indications are visible; valva as long as tegumen-vinculum, parallel-sided, with rounded apex, apodeme relatively stout, on inside at 1/3 a more strongly sclerotized fold; phallus apically narrowest, with rounded apex.

Female genitalia. Ostium lip bristled, cap-shaped, ventral arms of anterior apophyses end in a sclerotized plate, signum cone-shaped, with minute transverse sclerotizations.

Variation. The few studied specimens show no variation.

Similar species. Superficially similar to *A. insularis*, but distinguishable in the genitalia structures (males with long thin socii, valva without the U-shaped sclerotization subapically; females with cap-shaped ostium lip).

Distribution. In Europe known from Greece: Crete, and Cyprus, outside Europe from Syria, Lebanon, Israel, and Turkey.

New record. Cyprus: 2♂, Distr. Larnaka, Kalavasos, 50m, 8.-21.v.2017, leg. B. May, coll. Keller.

Bionomics. Larval pabulum unknown. Adults were collected between May and August.

191 *Ateliotum arenbergeri* Petersen & Gaedike, 1985

Ateliotum arenbergeri Petersen & Gaedike, 1985a: 33, figs. 11–12.

Description. Wingspan 10–12 mm; head brush dark grey to brown grey, coloration partly mixed; labial palpus dark brown-grey, second segment with long scales and some bristles, apically on inside creamy white, third segment short, pointed, creamy white; scape of antenna with pecten, together with flagellum dark-grey; thorax and tegulae dark-grey, apically creamy white; forewing with creamy white ground color, overlaid nearly completely by dark-grey to nearly black scales, forming a pattern of patches and short stripes. The dark scales form larger patches near base and at the end of cell at 3/4, another patch before 1/2 on dorsum is prolonged obliquely to costa as an incomplete strip; on dorsum and on costa some short dark and creamy white colored stripes; hindwing light grey-brown.

Male genitalia. Uncus laterally with two long, thin and pointed socii, between them dome-shaped; tegumen and vinculum band-shaped, basal edge more strongly sclerotized, with two short pointed processes (indications of saccus arms); valva spatulated, basally broader, apically rounded, inside the base of apodeme an area of long, strong sclerotized spines; phallus as long as valva, straight, from broader base narrower to apex.

Female genitalia. Ostium lip nearly funnel-shaped, basally and at beginning of ductus bursae more strongly sclerotized, ventral arms of anterior apophyses enlarged, segment VIII basally with granular sclerotization, apically ending in two conical processes, signum conical, with some transverse sclerotizations.

Variation. The pattern on forewing is somewhat variable.

SIMILAR SPECIES. Superficially similar to *A. insularis* and *A. syriaca*, but the shape of the dome-shaped uncus with the two socii and the valva with the basal area of sclerotized spines are clear differences in the male genitalia, the shape of segment VIII and ostium lip is a distinguishable characteristic in the female genitalia.

DISTRIBUTION. Cyprus.

BIONOMICS. Larval pabulum unknown. Adults were collected from the end of June to the beginning of August.

192 *Ateliotum larseni* Gaedike, 2011

Ateliotum larseni Gaedike, 2011a: 362, figs. 5, 17–24.

DESCRIPTION. Wingspan 10–15 mm; head brush creamy white-grey, antenna grey, scapus somewhat darker than flagellum; labial palpus with same coloration as head brush, second segment outside dark grey-brown, with long scales and some bristles, third segment short, pointed, directed oblique upwards; thorax and tegulae grey-brown, thorax basally and tegulae apically lighter; forewing creamy white to grey, with a pattern of dark grey-brown dots and patches: dark grey-brown are base of costa, a large patch at beginning of cell, at 1/2 below cell and at the end of cell; from base to 1/2 numerous thin strigulae, four short stripes on costa from 1/2 to apex, some very small dots on base of fringe; the entire wing overlaid with scattered darker or brownish scales; hindwing grey.

MALE GENITALIA. Uncus with two socii, inside, near base a pointed strong sclerotised tooth, vinculum ventrally prolonged into a long bifurcate saccus; valva short, more or less triangular with rounded apex, inside subapically with a strong sclerotized pointed tooth, apodeme narrow, long, phallus longer than uncus-tegumen-saccus, thin, basally rounded, at the beginning of second half outside with some small pointed thorns, subapically additional smaller thorns, at apex a bent pointed process, at crease a strong sclerotized hook.

FEMALE GENITALIA. Ostium clearly indented, laterally with bristled rounded lobes, major part of ductus bursae with almost longitudinal sclerotizations, signum cone-shaped, with fine crossways sclerotizations.

VARIATION. The appearance of the phallus is somewhat variable, depending on preparation (see figs. 20–23 in the original description).

SIMILAR SPECIES. Superficially similar to some other members of the genus (*A. insularis,* A. *petrinella*), but clearly different in the structure of the genitalia. The long bifurcate saccus and the phallus with the characteristic shape in male, and the sclerotized ductus bursae in female are unique in the genus.

DISTRIBUTION. Hitherto known only from the Canary Islands: Gran Canaria (type locality), Tenerife, La Palma.

BIONOMICS. Larval pabulum unknown. Adults were collected at the end of January and between the end of July and the beginning of September on Gran Canaria, at mid of September on Tenerife and at beginning of November on La Palma.

Haplotinea Diakonoff & Hinton, 1956

Haplotinea Diakonoff & Hinton, 1956: 31.

Type species: *Tinea insectella* Fabricius, 1794.

Description. Small species with a wingspan less than 20 mm, forewings without clear pattern, with light and dark brown scales.

Male genitalia. The tegumen-vinculum complex ring-shaped, uncus with two lobes, valva on inside with various projections and sclerotizations, phallus simple. Ventral anterior edge of sternite VIII more strongly sclerotized (see fig. 194a)

Female genitalia. First part of ductus bursae strongly sclerotized, corpus bursae without signa.

Distribution. Two species are known, distributed in the Holarctic Region (*H. insectella*) and in the West Palaearctic Region (*H. ditella*).

Bionomics. A compilation of the hitherto known data on life history is given by Robinson (2009). Details for the species see below.

Remarks. The changes in the systematic position were discussed in detail by Robinson (1984), who placed it into the subfamily Myrmecozelinae.

193 *Haplotinea ditella* (Pierce & Metcalfe, 1938)

Tinea ditella Pierce & Metcalfe, 1938: 68.

Description. Wingspan 14–18 mm; head brush brown, from the insertion of antennae to palpi somewhat lighter; labial palpus on outside brown, on inside yellowish-creamy white, straight, second segment with some bristles; antenna brown, scape without pecten; thorax and tegulae brown-colored too, tips of tegulae lighter; forewing light brown speckled with dark brown, without clear pattern, only the apical half of costa and termen with short light brown and dark brown stripes; the upper side of forewing a little iridescent; hindwing brown.

Male genitalia. Uncus with two lobes, subapically enlarged, with pointed and strongly sclerotized tip, vinculum at posterior edge impressed, saccus as long as lobe of uncus; valva compact, apically truncate, inside with strongly sclerotized blunt process, dorsal edge straight, strongly sclerotized, ventral edge at 1/2 enlarged, apodeme long, thin; basally on inside of valva a curved projection (probably anellus), basally broad, last half thin; phallus as long as uncus-tegumen-complex, somewhat curved.

Female genitalia. Anterior apophyses ending in a more strongly sclerotized oval area of segment VIII, the beginning of the sclerotized area connected by a rod-shaped sclerotization; ostium lip and first half of ductus bursae more strongly sclerotized.

Variation. No variation was found, only the tip of saccus in males is sometimes slightly enlarged.

Similar species. Superficially not clearly distinguishable from *H. insectella*, clear differences are visible in the structure of the genitalia. In males the shape of uncus and valva and in females the ostium lip without any special structure are characteristic.

Distribution. Nearly all Europe, except Iberian and Balkan Peninsula, outside Europe known from Caucasus through Turkmenistan to Mongolia.

Bionomics. Larvae has been found in mills, warehouses, and granaries on a

variety of stored vegetable products, especially cereals (Hinton, 1956). Overviews on the life history are given by Zagulajev (1964b; 1981) and Robinson (2009). According to Zagulajev (1964b), *H. ditella* is a permanent pest of stored products. Larvae were described in detail by Hinton (1956) and Zagulajev (1964b).

194 *Haplotinea insectella* (Fabricius, 1794)

Tinea insectella Fabricius, 1794: 303.

Tinea rusticella Hübner, 1796, nec Hübner, 1813.

Tinea misella Zeller, 1839: 184.

Description. Wingspan 13–18 mm. Coloration nearly completely the same as in *ditella*, only on forewing at 3/4 after the end of cell a dark brown patch, and the light brown stripes in the apical half more clear. Hindwing brown.

Male genitalia. Uncus with two long, broad socii, the apical half more strongly sclerotized and subapically with a half/complete turn, with pointed tip, directed inwards, vinculum at posterior edge deeply impressed, saccus minute, valva with long apodeme, basally broad, narrower to rounded apex, on inside near ventral edge before 1/2 a row of short, stout teeth, subapically another tooth; phallus lightly curved.

Female genitalia. Ostium lip cap-shaped, together with the middle part of posterior edge of segment VIII more strongly sclerotized, first part of ductus bursae densely covered with minute spines, strongly sclerotized.

Variation. Some specimens with lighter coloration, the contrast between dark and light brown scales on forewing is more clear (fig. 194b), the dark brown patch is often not clearly visible. In male genitalia the tip of socii sometimes with tooth-like structures, the number of teeth on inside the valva variable (figs. 194b, 194c), in female genitalia the shape of ostium lip varies (figs. 194a–194d).

Similar species. Superficially the dark brown patch on forewing, if visible, could be a distinguishing character; clear differences from *H. ditella* are seen in the genitalia structures: in male genitalia the shape of socii and valvae, in female genitalia the shape of ostium lip.

Distribution. Nearly entire Palaearctic region, no records from North Africa.

Bionomics. The life history is similar to the preceding species. Larvae have been found in granaries, barns and stables, houses, in fungi on walls in cellars and vaults. It is also found outdoors around fungus-infested trunks and stumps of various kinds (Hinton, 1956). In Finland (studied material from coll. Wikström) the species was reared from a box with an owl nest (*Strix aluco* or *Asio otus*). Overviews on life history are given by Zagulajev (1964b; 1981) and Robinson (2009). Larvae were described in detail by Hinton (1956).

Cephimallota Bruand, 1851

Cephimallota Bruand, [11.iii.1851]: 32 [= 66].

Type species: *Cephimallota crassiflavella* Bruand, 1851.

Cephitinea Zagulajev, 1964a: 680.

Type species: *Tinea colonella* Erschoff, 1874.

Cephitinea Zagulajev, 1965: 387.

Type species: *Tinea colonella* Erschoff, 1874.

Anemallota Zagulajev, 1965: 393.

Type species: *Tinea praetoriella* Christoph, 1872.

Aphimallota Zagulajev, 1983: 106.

Type species: *Aphimallota erschoffi* Zagulajev, 1983.

Description. Mostly medium-sized species, except *C. colonella*, coloration sometimes similar to the preceding genus, partly with clear pattern, mostly unicolorous brown to golden-brown.

Male genitalia. Tegumen and vinculum connected to a ring-shaped sclerotization, valvae often fused, uncus characteristically modified or reduced. Some species with characteristic modifications on sternite VIII.

Female genitalia. Segment VIII often with narrow central split.

Distribution. Hitherto ten species are known in the Palaearctic (five in Europe) and one in the Nearctic.

Bionomics. Only some indications about the life history of larvae are known in the literature, which are compiled by Robinson (2009) (see under the species below).

Remarks. The exact date of publication of this genus was established by Viette (1977). The "Catalogue…" is a reprint from "Mémoires de la Société d'émulation du Doubs". Under the title "Catalogue du Doubs (suite)" the "Tinéides" from No. 1149 to 1551 were published in part 6 on pages 27–58. The identical paper exists with pagination 61–92. *Cephitinea* was erroneously described as a new genus again by Zagulajev (1965).

195 *Cephimallota praetoriella* (Christoph, 1872)

Tinea praetoriella Christoph, 1872: 19.

Tinea uralskella Caradja, 1920: 169.

Description. Wingspan 12–18 mm; head brush yellowish brown, labial palpus with same coloration, on inside somewhat lighter, second segment with some bristles; scape of antenna darker brown than flagellum; thorax and tegulae brown, forewing on brown ground colour with a pattern of light yellowish to whitish dots on costa at 1/2, 2/3 and 3/4, on dorsum at 1/3 and 2/3, before apex and a minute dot basally at dorsum; hindwing dark grey.

Male genitalia. Uncus truncate, the edges angled, vinculum with short saccus; valva triangular, with pointed tip, from base to tip a strongly sclerotized edge, basally, opposite the apodeme, a strongly sclerotized appendix with two dentate finger-like processes; phallus angled near the base, narrow, without cornuti. Sternite VIII modified with strongly sclerotized anterior edge and with two posterior lobes (fig. 195a).

Female genitalia. Segment VIII with narrow slit, the edges strongly sclerotized, ostium narrow funnel-shaped, laterally and at beginning of ductus bursae strongly sclerotized.

Variation. In some specimens the dots at 1/3 on dorsum and 1/2 at costa as well as at 2/3 on costa and dorsum are connected to a band, and the dot before apex is enlarged reaching costa; between the band at 2/3 and enlarged dot on costa an additional small dot (fig. 195b). In contrast, in some specimens the pattern is reduced to minute dots (fig. 195c).

SIMILAR SPECIES. The pattern of yellowish to whitish dots clearly distinguishes the species from the other members of the genus, the modification of sternite VIII in males, the genitalia structures (shape of valva in males, the narrow slit in females) are additional differences.

DISTRIBUTION. Central Europe (Germany (Petersen, 1963)), Czech Republic (Laštůvka, 1998; Šumpich *et al.*, 2013), Central, East and South European Russia and Ukraine, outside Europe known from Lebanon, Turkey through Caucasus up to Iran, Kazakhstan, Turkmenistan.

BIONOMICS. Larvae were found at the entrance of a nest of *Bombus* sp. (Rapp, 1936; Petersen, 1963; Zagulajev, 1981).

196 *Cephimallota colonella* (Erschoff, 1874)

Tinea colonella Erschoff, 1874: 97.
Safra lignea Butler, 1879: 82.
Homalopsycha agglutinata Meyrick, 1931b: 96.
Cephitinea colongella Zagulajev, 1964a: 682, figs. 1–3.

DESCRIPTION. Wingspan 20–30 mm; head brush brown, labial palpus creamy white, on inside lighter than on outside, second segment with long scales, directed down, laterally with bristles, third segment short, pointed, somewhat darker; scape of antenna with pecten, flagellum dark brown; thorax with same coloration, basally lighter, tegulae nearly completely lighter brown; forewing brown, speckled with light brown, without clear pattern, most light brown dots and short stripes in the apical half; hindwing shiny greyish.

MALE GENITALIA. Uncus with two socii with rounded tips, basally a short, more strongly sclerotized process, vinculum with strongly sclerotized edge, without saccus, valva with long apodeme, broad, curved upwards (costa concave, ventral edge convex), apically rounded; at 1/2 near below costa a strongly sclerotized and bristled area, basally, above ventral edge a semicircular, sometimes circular, bristled area; anellus fused with apodeme, with finger-like processes; phallus as long as valva, slightly curved near the base. Sternite VIII with strongly sclerotized anterior edge, posterior edge curved in the middle (fig. 196a).

FEMALE GENITALIA. Sternite VIII below ostium lip curved to a tongue-like prolongation, tergite VIII with slit in the middle; anterior apophyses at the connection with sternite with numerous minute strongly sclerotized thorns.

VARIATION. Forewing of some specimens nearly completely overlaid with dark brown scales, only on the first half of costa with light brown patches (fig. 196b). In male genitalia the size of the bristled and more strongly sclerotized area on the inside of valva below costa varies (figs. 196b–196c). More extreme variations were described and illustrated by Chebanova (1983).

SIMILAR SPECIES. The large wingspan makes the species superficially distinguishable from the other members of the genus, besides the shape of the genitalia structures.

DISTRIBUTION. Ukraine and South European Russia, outside Europe known from Kazakhstan, Uzbekistan and Tajikistan through Mongolia and China to Russian Far East.

Bionomics. Chebanova (1981) described larvae and pupae from granaries. Zagulajev (1975b) noted that larvae are associated with decomposing plant residue, but they also live in granaries, in which they mainly damage old grain. It is not clear where these cited observations come from. Adults were collected between April and May (Middle Asia), in March, April and October (Japan), between February and May (China).

Remarks. The record from Great Britain (type locality of *Cephitinea colongella*) is either an introduction or the locality is erroneous.

197 *Cephimallota tunesiella* (Zagulajev, 1966)

Anemallota tunesiella Zagulajev, 1966: 166, figs. 19–21.

Description. Wingspan 11–19 mm; head brush yellowish brown, labial palpus with same coloration, on inside lighter yellowish, second segment with long scales, directed down, laterally with bristles, third segment short, pointed; antenna brown, scape with pecten; thorax and tegulae in basal half brown, the apical half lighter; forewing yellowish brown with dark brown pattern. Dark brown are a patch on base at costa, prolonged nearly to dorsum, and an incomplete stripe at 1/3 from costa to dorsum, the apical half speckled with dark brown scales, sometimes forming narrow stripes; hindwing grey.

Male genitalia. Uncus with two socii, from broad base narrower to pointed tip, on dorsal side connected to form a band, vinculum at posterior edge with semicircular excavation, anterior edge laterally with two short saccus arms, with appearance depending on the preparation (fig. 197a); valva with long apodeme, more or less parallel, on inside basally with long strongly sclerotized hook with pointed tip, and at 1/2 a strongly sclerotized, nearly triangular tooth, dorsal edge at 1/2 with a smaller bristled curvature; phallus longer than valva, basally round, narrower and regularly curved to tip.

Female genitalia. Ventral arms of anterior apophyses ending in an irregular plate, ostium lip cup-shaped, more strongly sclerotized, together with the beginning of ductus bursae.

Variation. Some specimens, mainly from eremic locations, with lighter coloration: head brush, thorax and tegulae light yellow, forewing light yellow to whitish, with an indistinct pattern of darker yellow dots and patches, fringe white, hindwing shiny whitish (fig. 197b).

Similar species. Superficially similar to *C. vittatella* (Chrétien, 1915), distributed in North Africa: Tunisia and to *C. repetekiella* (Zagulajev, 1971), distributed in Central Asia and in Algeria, but the shape of the male genitalia, especially the shape of valvae with the large basal hook is characteristic for this species.

Distribution. Iberian Peninsula, Greece (Crete), outside Europe known from North Africa (Morocco, Algeria, Tunisia, Libya) through Turkey and Caucasus up to Iran, Kazakhstan and Turkmenistan.

Bionomics. The compilation of the habitats of the larvae as given by Zagulajev (1975b; 1981) is based only on assumption. Adults were collected between August and October.

198 *Cephimallota crassiflavella* Bruand, 1851

Cephimallota crassiflavella Bruand, 1851: 32 (No. 1212).

Tinea simplicella Herrich-Schäffer, 1851: pl. 47: fig. 322 (not binominal).

Tinea simplicella Zeller, 1852: 169.

Tinea simplicella Herrich-Schäffer, 1854: 73 (homonym).

Description. Wingspan 13–16 mm; head brush golden-yellow, labial palpus golden-yellow, second segment along the inner side and at outer apex bristled, antenna filiform, brown-grey, scape with pecten; thorax and tegulae and forewing brown to dark brown, shimmering slightly violet, without any maculation, only costal margin slightly lighter; hindwing a little lighter than forewing.

Male genitalia. Uncus with two obtuse setaceous protuberances, firmly attached to the tegumen, below uncus a strongly sclerotised clasp (gnathos?) with three acute small protuberances; tegumen broad, ventrally narrowing; valva compact, broad, semi-circular, with very long and slender apodeme, with strongly sclerotized obtuse tip, below the tip connected to the other valva; lateral side of valva stretched out in a long curved and strongly sclerotized appendix; phallus no longer than width of tegumen, rounded basally, apex narrower, almost straight. The entire genital apparatus in situ compact, valvae fitted into the teguminal invagination, hardly mobile separately.

Female genitalia. Anterior apophyses with a very short lateral fork/spine, the inner branch ending in a more strongly sclerotized ostium plate with a deep central split, apical part of split acute or rounded, subapical part broader, with rectangular edges, opening of the split more or less constricted.

Variation. In male genitalia saccus variable in shape, either straight or stretched out to a more or less short tip (see figs. 6–27 in Gaedike & Mally, 2011).

Similar species. Differences to *C. angusticostella* see below.

Distribution. In Europe from Canary Islands, continental Spain, Portugal (Corley *et al.*, 2013), France (incl. Corsica), Italy (incl. Sardinia), the Balkan Peninsula (Slovenia, Croatia, Bosnia and Herzegovina), Belgium, Great Britain, Germany, Switzerland, Austria, Czech Republic, Slovakia, Poland, Hungary, Ukraine, Russia, outside Europe from Morocco, Algeria, Turkey and Armenia.
New record. Armenia, 1♂, Prov. Tavush, Dilijan, 12.–14.vii.2011, leg. O. Karsholt, ZMUC.

Bionomics. Larval pabulum unknown, probably in nests of social Hymenoptera, adults can be smoked out of the walls of vineyards (Petersen, 1969). Adults have been collected between April and August, mainly between June and July.

199 *Cephimallota angusticostella* (Zeller, 1839)

Incurvaria angusticostella Zeller, 1839: 183.

Tinea angusticostella (Herrich-Schäffer, 1851): pl. 47: fig. 321 (not binominal).

Tinea angusticostella Herrich-Schäffer, 1854: 73, homonym.

Cephimallota libanotica Petersen, 1959: 154, fig. 2.

Cephimallota hasarorum Zagulajev, 1965: 390, fig. 3.

DESCRIPTION. Wingspan 11–16 mm; head brush golden-yellow, sometimes more grey-yellow, labial palpus golden-yellow, sometimes grey-yellow, second segment at outer apex bristled, antenna filiform, brown-grey, scape with pecten; thorax and forewing dark brown, slightly shimmering violet, forewing covered with small light spots, more dense along the costal and dorsal margin; hindwing slightly lighter brown-grey.

MALE GENITALIA. Uncus with two setaceous oblong protuberances, firmly attached to the tegumen, below uncus a strongly sclerotized clasp (probably gnathos) with a slender digitiform appendix; tegumen broad, narrowing ventrally, saccus almost as long as width of tegumen; valva compact, semi-circular, overall more slender then in *C. crassiflavella*, with very long, slender apodeme, with strongly sclerotized obtuse tip, inward-directed, below the tip connected with the other valva; lateral side of valva stretched out in a long curved and strongly sclerotized appendix; phallus as long as tegumen and saccus together, slightly curved over entire length. The entire genital apparatus in situ compact, valvae fitted into the teguminal invagination.

FEMALE GENITALIA. Anterior apophyses furcated, ventral part ending in a large ostial plate, with deep split in the area of the ostium, laterally edged, split with rounded end; in the centre of the split a small, strongly sclerotized appendix.

VARIATION. No variability was found in the male genitalia. In comparison with *C. crassiflavella*, the genital apparatus is always smaller, even in specimens of the same size.

SIMILAR SPECIES. Superficially distinguishable from *C. crassiflavella* by having light dots on forewing. In male genitalia the saccus is almost as long as the width of tegumen and invariable in shape, whereas in *C. angusticostella* saccus is short and variable in shape, the clasp (gnathos?) below uncus bears a slender digitiform appendix, while in *C. crassiflavella* the clasp has three acute small protuberances. In female genitalia the large ostial plate is deeply split with rounded end and it bears a small sclerotized appendix, while in *C. crassiflavella* the split in the ostial plate is very narrow in its posterior part and widens to an acute or rounded, broad apex.

The differences in external and genital morphology are corroborated by molecular analyses (DNA barcoding)(Gaedike & Mally, 2011).

DISTRIBUTION. Known with certainty from Italy (incl. Elba Island), Balkan Peninsula (Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Macedonia, Albania, Greece, Romania, Bulgaria), Cyprus, Ukraine (Bidzilya & Budashkin 1998), East European Russia, Austria (Kasy 1987; Wieser 1998, 2003; Wieser & Kofler, 2000; the record from East Tyrol by Deutsch (2003) is erroneous and the specimen belongs to *C. crassiflavella*), Czech Republic Bohemian Karst, 2014 and 2015 (Laštůvka, pers. comm., in press) the records cited in Laštůvka *et al.* 1994; Vavra, 2002 belong to *crassiflavella*, Slovakia, Hungary, outside Europe known from Lebanon, Turkey, and Armenia. In addition, one confirmed record from Spain, one confirmed record from Corsica and

two confirmed records from Germany are known.

BIONOMICS. Larval pabulum unknown, probably the same as the preceding species.

REMARKS. A record from Spain (Sierra Nevada, one specimen) is outside the general distribution of this species (Gaedike & Mally, 2011).

Perissomasticinae

Perissomasticinae Gozmány, 1965a: 117.
Type-genus *Perissomastix* Warren & Rothschild, 1905.
Episcardiini Capuşe, 1971: 233.
Type-genus: *Episcardia* Ragonot, 1895.

The validity of the genus *Perissomastix* was confirmed by Gozmány & Petersen (1964).

A more detailed characterization of the subfamily was given in Gozmány & Vári (1973). The subfamily is restricted to the Old World (Robinson, 2009).

Edosa Walker, 1866

Edosa Walker, 1866: 1818.
Type species: *Edosa hemichrysella* Walker, 1866.
Chrysoryctis Meyrick, 1886: 530.
Type species: *Oecophora irruptella* Walker, 1864.
Episcardia Ragonot, 1895b: CV.
Type species: *Psecadia lardatella* Lederer, 1858.
Cylicobathra Meyrick, 1920b: 99.
Type species: *Cylicobathra chionarga* Meyrick, 1920.
Sphallesthasis Gozmány, 1959: 347.
Type species: *Sphallesthasis similis* Gozmány, 1959.
Phalloscardia Gozmány, 1966: 62.
Type species: *Tinea semiumbrata* Meyrick, 1920.
Bilobatana Zagulajev, 1975b: 250.
Type species: *Tinea caerulipennis* Erschoff, 1874.
Neoepiscardia Petersen & Gaedike, 1982: 336.
Type species: *Neoepiscardia islamella* Petersen & Gaedike, 1982.

DESCRIPTION. Small to medium-sized moths with wingspan from 7 up to 40 mm; head brush with erect scales and labial palpus with spiny lateral bristles. Species of the genus can be recognized in the field by their glossy appearance; nearly all species are unicolored, forewings ranging from pale golden brown to deep purple-brown, some species from the Afrotropical region and from North Africa and the Middle East are brilliant white, only the species from Australia have more or less complex patterns of transverse markings in yellow, purple and lilac.

MALE GENITALIA. Vinculum and tegumen forming a strongly sclerotized short cylinder, saccus absent, uncus fused with tegumen, with a broad, shouldered base, most species with a pair of parallel or convergent narrow processes directed posteriorly, with great variation between species, gnathos absent, valva very variable between species, juxta fused with vinculum and phallus.

FEMALE GENITALIA. Oviscapt short, sternite VIII more or less emarginate medially, antrum narrow, cylindrical, short or absent, ostium broad to narrow, anterior and protruded ventrad in many species. The complex colliculum at the base of ductus bursae consisting of transverse or

oblique rings or flanges, which are invaginated in many species to form an often characteristic elongate digitate process or pair of processes.

Distribution. The species are widespread in the Old World from the Palaearctic region through the Afrotropical and Oriental regions to Australasia. At present 42 species are known from the Palaearctic region (including all of China), but only one species is known from Europe. There are 197 described species in this genus plus a large number of still undescribed species, which can be found in previously unidentified museum material (Robinson 2008).

Bionomics. Hitherto nothing is known about the life history of the larval stages.

Remarks. A revision of the genera related to *Episcardia* was given by Gaedike (1984). Robinson (2008) revised and established the above-mentioned synonyms of the genus *Edosa* from Sundaland and provided a phylogenetic analysis. Yang et al. (2014) revised the Chinese species and provide a global checklist of the 197 known species of the genus.

200 *Edosa fuscoviolacella* (Ragonot, 1895)

Tineola fuscoviolacella Ragonot, 1895b: CV.
Tinea violacella Rebel, 1893: 42, nec Haworth, 1828.
Tinea luteocapitella Amsel, 1935: 313, pl. 10, fig. 72.

Description. Wingspan 13–23 mm; head brush golden brown; labial palpus paler, outside somewhat darker than inside; antenna nearly as long as forewing, scape and beginning of flagellum brown, the remaining part of flagellum light yellow; thorax and tegulae and forewing unicolored dark brown, iridescent; hindwing somewhat lighter colored, iridescent.

Male genitalia. Uncus with two long narrow convergent processes with rounded tip, directed posterorly; vinculum basally invaginated in the middle; valva divided into two equal parallel parts, costal part more strongly sclerotized than ventral part, each with rounded tip; phallus as long as valva, slightly curved, basal half with net-like structure.

Female genitalia. Anterior apophyses forked, ending in an area covered with numerous minute thorns, sternite VIII prolonged medially; antrum absent, ostium without any characteristic structure, without a complex colliculum.

Variation. Some specimens with whitish head brush, forewing light pale brown, hindwing whitish grey (fig 200b).

Similar species. Superficially similar to *E. caerulipennis* (Erschoff, 1874), distributed in Middle East, but the wingspan of that species is larger. Clear differences are seen in the genitalia structure: male with undivided half-moon-shaped valva, female with complex colliculum.

Distribution. Greece, Cyprus, outside Europe known from Turkey, Lebanon, Israel, Jordan, Armenia and Azerbaijan.

New record. Armenia, 1♂, Prov. Vayots Dzor, 10km SE Areni Noravank, 1600m, 39°41'07"N, 45°14'02"E, 15.–17.vii.2011, leg. O. Karsholt, ZMUC.

Bionomics. Larval pabulum unknown. Adults has been collected between May and October.

Crassicornella Agenjo, 1952

Crassicornella Agenjo, 1952: 67.

Type species: *Crassicornella crassicornella* Agenjo, 1952, nec Zeller, 1847.

Tineomorpha Amsel, 1956: 28.

Type species: *Tinea hirundinea* Meyrick, 1928c.

Petersenia Gozmány, 1960: 112 (nec Schütze, 1958) (homonym).

Type species: *Petersenia perplexa* Gozmány, 1960.

DESCRIPTION. Medium-sized moths with wingspan between 8 and 20 mm; males with antenna thicker than antenna of females, forewing more or less shining.

MALE GENITALIA. Lobes of uncus dorsally with large hook-shaped, triangular sclerotizations, phallus basally broadest, posterior part more or less oblique directed dorsad.

FEMALE GENITALIA. Ductus bursae with sclerotized ring and inside a cone-shaped sclerotization, posterior apophyses with only indications of thickening below the papillae analis, which is characteristic for the other genera of the tribe.

DISTRIBUTION. Five species are known, distributed in North Africa, two of them are known also from Europe (Mediterranean area).

BIONOMICS. No information about the larval pabulum is available.

REMARKS. *Crassicornella* is the only European representative of the tribe Perissomasticini. In the revision of the tribe (Petersen, 1988) ten genera were included: *Malacyntis* Meyrick, 1908; *Perissomastix* Warren & Rothschild, 1905 (with subgenera *Aphrodoxa* Gozmány, 1959 and *Perissomastix* s. str.); *Denticlunicula* Petersen, 1988; *Psolarcha* Meyrick, 1933; *Crassicornella* Agenjo, 1952; *Neopsolarcha* Petersen, 1988; *Trokabe* Viette, 1993 (nom. nov. pro *Betroka* Petersen, 1988, nec Viette, 1954); *Praelongicera* Amsel, 1956; *Lazocatena* Gozmány, 1959 and, *Ectabola* Gozmány, 1966. I follow this division into several genera, although Robinson (2009) disagreed with this opinion.

201 *Crassicornella crassicornella* (Zeller, 1847)

Tinea crassicornella Zeller, 1847: 810.

Tineola marianii Turati, 1931: 151.

DESCRIPTION. Wingspan 8–14 mm; head brush light brown, from neck to base of antennae dark brown; labial palpus short, hanging, second segment apically bristled; antenna as long as forewing, scape without pecten; thorax and tegulae and wings shining brown-grey, forewing without any pattern; hindwing a little lighter than forewing.

MALE GENITALIA. Uncus divided into two lobi, more or less parallel, apically truncate, inside rounded, outside pointed, the hook-shaped sclerotizations more or less triangular; valva basally broader, apical half narrower, parallel to rounded apex; phallus only 1/2 of the length of valva, apical third narrow, obliquely directed upwards.

FEMALE GENITALIA. Anterior apophyses forked, the arms ending in a plate covered with minute thorns and longer bristles, around ostium a band-shaped sclerotized area, posterior apophyses

subapically with an indication of thickening, papillae analis basally bristled, more or less triangular shaped, ductus bursae with ring-shaped sclerotization and inside with a cone-like process, apical half covered by numerous thin thorns.

Variation. Superficially variable only in wingspan (see Petersen, 1988), in male genitalia the hook-shaped sclerotizations on uncus (see figs. 201b–201d) and the valvae (see figs. 201f–201i) are variable, in female genitalia the cone-like sclerotization in the ductus bursae somewhat variable (see figs. 201a–201c).

Similar species. Superficially not distinguishable from *C. agenjoi*. In male genitalia, the shape of phallus and the variability of uncus are different, in female genitalia the shape and size of the cone-shaped sclerotization is characteristic.

Distribution. Italy (incl. Sicily), Albania, Greece (incl. Crete), outside Europe known from Turkey and Lebanon (Gaedike & Kullberg, 2016).

Bionomics. Adults have been collected between March and September, according to Petersen (1988) two generations in Greece (first between middle of March and end of June, second between middle of July and beginning of September).

Remarks. East-Mediterranean distribution, the species replaces the following species in this area.

202 *Crassicornella agenjoi* (Petersen, 1957)

Catabola agenjoi Petersen, 1957c: 568, fig. 217.

Crassicornella crassicornella Agenjo, 1952: 67, nec Zeller, 1847 (homonym).

Episcardia incerta Gozmány, 1960: 114, fig. 6B.

Description. Superficially not distinguishable from the preceding species, the specimens are somewhat larger (wingspan 10–16 mm).

Male genitalia. Shape of uncus with the two lobes and with the hook-shaped sclerotizations similar to *C. crassicornella*; valva long, narrow, as long as uncus-tegumen-complex, basally only a little broader than at rounded apex; phallus basally bulbose, last half narrower to pointed tip, in lateral view slightly curved upwards.

Female genitalia. The only difference from the preceding species is the sclerotization in the ductus bursae: a broad ring, inside a strongly sclerotized thorn without any additional bristles.

Variation. In male genitalia phallus somewhat variable (lateral view, see figs. 202b–202d).

Similar species. See remarks under *C. crassicornella*.

Distribution. Iberian Peninsula (with Gibraltar: Perez, 2009), France (Charente-Maritime: Guyonnet, 2016), outside Europe known from North Africa (Mauretania, Morocco, Algeria, Tunisia). The record from The Netherlands (Huisman et al., 2003) is clearly an unintentional introduction.

Bionomics. Adults have been collected between April and October, clearly in two generations.

Remarks. West-Mediterranean distribution, the species replaces the preceding species in this area.

Tineinae.

Tineites Latreille, 1810: 347, 363. (Correction and validation in Opinion 450, *Bulletin of zoological Nomenclature* **15**: 259).

Type-genus: *Tinea* Linnaeus, 1758.

Blabophaninae Spuler, 1899: 35.

Type-genus: *Blabophanes* Zeller, 1852.

Pringleophaginae Enderlein, 1905: 120.

Type-genus: *Pringleophaga* Enderlein, 1905.

Monopidae Spuler, 1910: 462.

Type-genus: *Monopis* Hübner, 1825.

Triochophagini [sic] Capuşe, 1964: 63.

Type-genus: *Trichophaga* Ragonot, 1894.

Phereoecini Capuşe, 1971: 236.

Type-genus: *Phereoeca* Hinton & Bradley, 1956.

Ceratuncus Petersen, 1957

Ceratuncus Petersen, 1957a: 105.

Type species: *Myrmecozela danubiella* Mann, 1866.

DESCRIPTION. Medium-sized moths, forewings without pattern, more or less unicolorous from light golden brown to brown.

MALE GENITALIA. Uncus with two-pointed lobi, pincer-shaped, tegumen dorsally invaginate, vinculum with long narrow saccus, phallus thin.

FEMALE GENITALIA. Ostium deeply invaginate, sternite VIII with a digitate process on each side, corpus bursae with two kinds of signa. The shape of structure in *C. maroccanella* is quite different; it needs further studies to confirm the validity of this assignment.

DISTRIBUTION. Four species are known in the Palaearctic region, three of them are known from Europe.

BIONOMICS. Larval hosts are unknown,

REMARKS. The taxonomic position of the genus is uncertain. I follow the opinion of Petersen (1957a) and Robinson (2007) to place it in Tineinae.

203 *Ceratuncus danubiella* (Mann, 1866)

Myrmecozela danubiella Mann, 1866: 349.

Ceratuncus andalusicus Zagulajev, 1971a: 419, fig. 3.

DESCRIPTION. Wingspan 15–20 mm; head brush golden yellow, labial palpus short, paler yellow, second segment ventrally with long bristle-like scales, directed downwards; scape of antenna with pecten, flagellum ringed; thorax, tegulae and forewing golden yellow, forewing without any pattern; hindwing dark grey.

MALE GENITALIA. The two lobes of uncus with subapical digitate process with rounded tip, between the uncus lobes a cup-shaped excavation; gnathos arms tapered from base to apex, saccus with more strongly sclerotized edges, thin, pointed; valva with long apodeme, spatula-shaped, basal half broader, apical half narrowed to rounded tip, costal edge concave; phallus long, straight, narrow.

FEMALE GENITALIA. The finger-like processes of sternite VIII with more strongly sclerotized rounded and bristled tip, ostium deeply invaginated, sternite VIII with thin rows of minute sclerotizations basally; corpus bursae with larger thorns in the first third and with smaller bristles with round base in the last third.

VARIATION. Some specimens with pale yellow coloration (see fig. 203b). The shape of uncus depends on preparation, the shape of gnathos arms somewhat variable (see figs. 203a–203b).

SIMILAR SPECIES. The golden yellow coloration is similar to *C. affinitella*, a clear difference is the shape of uncus without broad base.

DISTRIBUTION. Iberian Peninsula, Malta, Croatia, Greece, Bulgaria, Romania, northwards known from Austria, eastwards known from Ukraine and South European Russia, outside Europe known from Turkey through Caucasus region to Iran.

BIONOMICS. Adults have been collected in April and September.

204 *Ceratuncus maroccanella* (Amsel, 1951)

Tinea maroccanella Amsel, 1951: 177, fig. 4.

DESCRIPTION. Wingspan 16–20 mm; head brush pale brown, laterally from insertion of antennae to apex somewhat darker, labial palpus pale brown, second segment with numerous bristle-like scales, directed downwards; scape of antenna with pecten, flagellum ringed; thorax and tegulae light brown mixed with darker scales; forewing pale brown, from base along cell to beginning of fringe a lighter pale streak, costa on the last third pale brown; hindwing shiny grey.

MALE GENITALIA. The two lobes of uncus triangular, from base narrowed to pointed, more or less hook-shaped tip, the inside edge narrowly folded; gnathos arms as long as base of uncus lobe is broad, saccus appr. 1.5 times longer than valva, slender; valva spatulate, basal third parallel-sided, then more or less clearly curved upwards, apex rounded; phallus more than two times longer than valva, thin, apex mostly with two small pointed tips, with some (two or three) long cornuti.

FEMALE GENITALIA. Ostium funnel-shaped, edges wrinkled, signa at beginning of corpus bursae forming a more strongly sclerotized patch with a small thorn in the middle and minute needle-like thorns apically, signa in the middle of corpus bursae are needle-like thorns on small sclerotized bases.

VARIATION. Sometimes the coloration of the entire specimen is light yellowish brown, hindwings shiny whitish grey(see fig. 204b). In males the shape of valva varies, sometimes no cornuti are visible, maybe they are lost in mating, which can happen in several families (see figs. 204a–204e). In the slide of the holotype (fig. 204f) the apical part of phallus is broken and absent.

SIMILAR SPECIES. The lighter pale streak on forewing distinguish the species from *C. dzhungaricus*, in male genitalia the longer saccus and phallus and the presence of cornuti are characteristic, while saccus and phallus of *C. dzhungaricus* are clearly shorter and phallus without cornuti.

DISTRIBUTION. Spain (Prov. Avila, studied material), Portugal (Corley et al., 2006; 2014; Corley, 2015; studied material), outside Europe known from Morocco.

BIONOMICS. Larval host unknown, adults were collected between June and July.

REMARKS. The records from Portugal were published under the name *C. dzhungaricus*, a misidentification corrected here. The female specimen, superficially not distinguishable from the males, was collected for the first time by Corley, which enabled me to make the drawing from his slide. The shape of the female genitalia is quite different from that of C. *danubiella* and C. *affinitella*. It needs the study of more material to confirm the validity of the assignment to this species.

205 *Ceratuncus dzhungaricus* Zagulajev, 1971

Ceratuncus dzhungaricus Zagulajev, 1971a: 420, fig. 4.

DESCRIPTION. Wingspan 13–17 mm; head brush light yellowish brown, above palpi lighter; labial palpus yellowish brown, second segment with numerous bristle-like scales, directed downwards; scape of antenna yellowish, with pecten, flagellum ringed; thorax and tegulae and forewing yellowish brown, forewing without any pattern; hindwing shiny grey.

MALE GENITALIA. The two lobes of uncus triangular, from base narrowed to pointed tip, the inside edge not folded; gnathos arms short, saccus as long as valva, thin; valva spatulate, from broader base to rounded apex slightly curved upwards; phallus not more than two times longer than valva, straight, with two short pointed tips, without cornuti.

FEMALE GENITALIA. Still unknown.

VARIATION. The shape of valva somewhat variable (see fig. 205a).

SIMILAR SPECIES. For differences from *C. maroccanella*, see above.

DISTRIBUTION. South European Russia: Caucasus mts: Pjatigorsk (Zagulajev, 1975b), outside Europe from Kazakhstan: Dzhungarian Alatau (type locality) and Dsharkent.

BIONOMICS. Larval hosts unknown, adults were collected in July (type series) and in middle of October (Pjatigorsk).

REMARKS. The published records from Portugal (Corley et al., 2006; 2014; Corley, 2015) are based on misidentification of *C. maroccanella*.

206 *Ceratuncus affinitella* (Rebel, 1901)

Myrmecozela affinitella Rebel, 1901: 184.
Eriocottis maraschensis Rebel, 1936: 90.
Tinea talhouki Amsel, 1940: 38: fig. 2.
Tinea irakella Amsel, 1949: 323: pl. X, fig. 70.
Tinea libanotica Amsel, 1951: 178: fig. 5.

DESCRIPTION. Wingspan 16–22 mm; head brush creamy-white; labial palpus whitish, second segment with bristle-like scales, directed downwards; scape of antenna creamy-white, with pecten, flagellum ringed; thorax, tegulae and forewing creamy-white, overlaid with light pale brown scales, forewing without any pattern; hindwing grey.

MALE GENITALIA. The pincer-shaped uncus lobes square at base, laterally the posterior edge somewhat prolonged and rounded, the outside narrowed to pointed tip; gnathos arms slightly curved, with rounded tip; tegumen apically with strongly sclerotized edge, saccus a little longer than gnathos arm, narrow; valva as long as uncus-tegumen, from broad base tapered to apex; phallus as long as valva, straight, thin.

FEMALE GENITALIA. Ostium deeply invaginated, laterally with digitate prolongations of sternite VIII, the tips not more sclerotized than rest of sternite; corpus bursae with some larger thorns in the first third and with numerous smaller thorns with round base in the last third.

VARIATION. Some specimens unicolorous golden yellow, hindwing dark grey (see fig. 206b), quite similar to *C. danubiella*.

SIMILAR SPECIES. Superficially sometimes (the golden yellow coloured specimens) quite similar to *C. danubiella*, clear

differences are seen in the genitalia structure. Males with pincer-shaped uncus lobes with broad basal half, females without more strongly sclerotized tip of finger-like prolongations of sternite VIII.

Distribution. Known outside Europe from Lebanon, Iraq through Turkey and Iran to Armenia. Concerning European records, see remarks.

Bionomics. Larval host unknown, adults have been collected between March and June.

Remarks. The known recent distribution of *C. affinitella* does not cover Europe, but in the literature it was erroneously indicated as a European species: Zagulajev (1975b: 202), referring to Petersen (1957a: 106 and 1962: 531), listed Crimea as a location, but this was a misinterpretation. In the papers of Petersen the location is named: "Taurus" [Mountains in Turkey], and not the ancient name of Crimea: "Taurien".

Reisserita Agenjo, 1952

Reisserita Agenjo, 1952: 65.

Type species: *Tinea haasi* Rebel, 1901.

Trichocerella Zagulajev, 1956b: 914 (as subgenus from *Cilicorneola* Zagulajev, 1956).

Type species: *Tinea relicinella* Herrich-Schäffer, 1853.

Description. Medium-sized moths with a wingspan between 10 and 18 mm; scape of antenna with pecten; forewing in nearly all species without any pattern, unicolored from light yellowish through golden brown to dark brown.

Male genitalia. Uncus mostly deeply indented or with slit in the middle, gnathos arms well developed, angled, phallus mostly with several cornuti.

Female genitalia. Sternite VIII more or less indented around ostium, corpus bursae with various forms of signa.

Distribution. A Palaearctic genus with 21 described species, mainly in the Mediterranean, nine species in Europe.

Bionomics. Nothing is known about the larval pabulum.

Remarks. A revision of the North African species is given by Gaedike (2015a).

207 *Reisserita zernyi* Petersen, 1957

Reisserita zernyi Petersen, 1957a: 110, fig. 62.

Reisserita australis Gozmány, 1960: 107, fig. 3A.

Description. Wingspan 10–16 mm; head brush light yellowish, laterally more yellow; labial palpus pale yellowish, second segment bristled; scape of antenna yellow, flagellum grey-brown; thorax light yellowish, tegulae yellow, forewing unicolored golden yellow, only costa in the first quarter somewhat darker; hindwing dark grey.

Male genitalia. Uncus with slit in the middle, laterally each a bristled digitate lobe with more or less pointed tip; gnathos arms angled at 1/2, apical half narrower, ending in a pointed tip; valva with long apodeme, basally broad, costal edge more or less straight to rounded apex, ventral edge convex after 1/2, apically with some strongly sclerotized variously sized thorns; phallus a little longer than valva, with two rows of numerous thorn-shaped cornuti.

Female genitalia. Ostium funnel-shaped, overlaid by band-shaped sternite

VIII, which is concave in the middle; the area around ostium with numerous minute thorns; signum on a variable-sized plate with some minute thorns.

VARIATION. Sometimes the coloration is paler. In male genitalia the shape of uncus and valva as well as the shape and numbers of cornuti are variable (see figs. 207a–207i).

SIMILAR SPECIES. Superficially similar to some other members of the genus (*R. chrysopterella*, *R. parva*, *R. latiusculella*), but the shape of male genitalia, especially uncus and valva is clearly different.

DISTRIBUTION. Iberian Peninsula.

BIONOMICS. Adults have been collected between May and October.

208 *Reisserita haasi* (Rebel, 1901)

Tinea haasi Rebel, 1901: 181.

DESCRIPTION. Wingspan 11–18 mm; head brush light yellowish brown, laterally, around eyes, darker brown; labial palpus outside brown, inside lighter brown, second segment bristled; antenna nearly as long as forewing, dark brown; thorax dark brown, basally and apically lighter, tegulae dark brown too; forewing unicolored dark brown; hindwing grey brown.

MALE GENITALIA. Slit in the middle of uncus deep, the lobes more or less triangular, with pointed tip, gnathos arms angled after 1/2, with pointed tip; valva with large apodeme, more or less parallel, with rounded apex, subapically on inside near ventral edge a very small strongly sclerotized blunt tooth; phallus as long as valva, with two rows of small cornuti.

FEMALE GENITALIA. Ostium funnel-shaped, area below ostium with minute crosswise sclerotizations and with minute thorns; signum a variable strongly sclerotized plate with some very small thorns.

VARIATION. Superficially without variability, in male genitalia the shape of gnathos arms and the size of the blunt tooth on valva somewhat variable (see figs. 208a–208f).

SIMILAR SPECIES. Superficially distinguishable from the other members of the genus by the unicolored dark brown forewings, in male genitalia the small blunt tooth on inside of valva is characteristic.

DISTRIBUTION. Iberian Peninsula.

BIONOMICS. Adults have been collected between April and August.

209 *Reisserita chrysopterella* (Herrich-Schäffer, 1854)

Atemelia chrysopterella Herrich-Schäffer, 1854: 122 (1851: Fig. 271, not binominal).

Tinea vitellinella Staudinger, 1859: 235.

DESCRIPTION. Wingspan 13–17 mm; head brush yellowish; labial palpus on inside with same coloration, on outside brown, second segment bristled; underside of the scape of antenna pale yellowish; thorax, tegulae and forewing golden yellowish, forewing without any pattern, costa before apex and fringes brown yellowish; hindwing dark grey.

MALE GENITALIA. Slit in the middle of uncus deep, the two lobes very close together, the edges strongly sclerotized, broad, apically oblique truncate, the outer edge rounded, shorter than the more or less pointed inner edge, the shape varies; gnathos arms angled at 1/2, apical half narrower to pointed tip; valva with long thin apodeme, costal edge concave, strongly

sclerotized, ventral edge curved in the basal half, second half convex, apex rounded; phallus longer than valva, straight, with minute cornuti-like sclerotizations.

Female genitalia. Segment VIII invaginated on posterior edge, laterally forming two shorter prolongations; ostium without special structures, ductus bursae with minute thorns, signum with an irregular, strongly sclerotized plate.

Variation. Some specimens with dark golden yellowish coloration, costa before apex and fringes of forewing dark brown (see fig. 209b). In males the shape of uncus varies (see figs. 209a–209d).

Similar species. Superficially similar to *R. zernyi*, clear differences are seen in the genitalia structure. Males with broad uncus lobes and with deep slit with sclerotized inner edges, phallus without cornuti rows, females with ostium without special structures.

Distribution. Iberian Peninsula, including Gibraltar (Perez, 2009).

Bionomics. Adults have been collected between April and August.

Remarks. The record from Turkey (Koçak & Kemal, 2006) is very doubtful, since it is far outside the known range and no illustrations of the specimen(s) are given. It may be a misidentification of *R. latiusculella*.
Concerning the exact year of Herrich-Schaeffer's description see Petersen (1986a).

210 *Reisserita parva* Petersen & Gaedike, 1979

Reisserita parva Petersen & Gaedike, 1979: 402, figs. 21–24.

Description. Wingspan 8–10 mm; head brush light yellow-brown, labial palpus paler, second segment bristled; antenna nearly as long as forewing; thorax, tegulae and forewing yellow-brown, forewing without any pattern; hindwing shiny grey.

Male genitalia. Uncus with short slit, the two lobes square, apically truncate, the inner edge strongly sclerotized and somewhat longer than outer edge; gnathos arms, sturdy, from base to pointed tip evenly rounded; saccus more or less triangular; valva with long apodeme, short, parallel, apex with rounded costal edge and prolonged ventral edge with pointed tip; phallus appr. 1.5 times longer than valva, with some minute thorn-like cornuti.

Female genitalia. Segment VIII triangular with truncate apex; ostium at beginning strongly sclerotized, corpus bursae without signum.

Variation. In male genitalia the shape of uncus and valva are somewhat variable (see figs. 210a–210b).

Similar species. Superficially similar (small size) to *R. panormitanella* and *R. mauritanica*. Clear differences are seen in the male genitalia (shape of uncus and shape of valva).

Distribution. Spain and Morocco.

Bionomics. The few known adults have been collected between July and September.

211 *Reisserita latiusculella* (Stainton, 1867)

Tinea latiusculella Stainton, 1867: 41.

Description. Wingspan 11–15 mm; head brush yellow-brown; labial palpus inside

light yellow-brown colored, outside darker, second segment bristled; thorax, tegulae and forewing yellow-brown, forewing without any pattern; hindwing shiny light grey.

Male genitalia. Uncus with very short slit in the middle, lateral edges more strongly sclerotized, apically with rounded tip; gnathos arms angled after 1/2, with pointed tip, basal half on inside with numerous minute thorns, vinculum with long more or less triangular saccus; valva as long as saccus, relatively narrow, with long apodeme, base ventrally with curved digitate process, ventral edge with pointed apex, while costa with rounded apex, on inside of valva a rod-shaped sclerotization; phallus two times longer than valva, narrow, with two long cornuti.

Female genitalia. Sternite VIII deeply invaginated in the middle around ostium, lateral edges broadly strongly sclerotized, first part of ductus bursae with numerous strongly sclerotized transverse wrinkles, signa in corpus bursae are small needle-like thorns on a sclerotized plate.

Variation. Superficially with no variation. In male genitalia the shape of valva variable, and the view depends on preparation (see figs. 211a–211c).

Similar species. Superficially not clearly distinguishable from the other members of the genus, but the shape of uncus, gnathos arms and valvae are clear characteristics for determination.

Distribution. Here recorded for the first time in Europe from Cyprus (unpublished records), outside Europe known from Turkey, Israel and Lebanon.

New records. Cyprus, 6♂, env. of Paphos, 8.–20.v.1993; 29.iv.–13.v.1994, leg. J. Wimmer; 8♂, env. of Limassol; 23.–29.vi.1997, leg. M. Fibiger et al., ZMUC; 1♀, S-Cyprus, 3km W of Dekaleia, 34°39'N, 33°42'W, 9.v.2007, leg. B. Skule, ZMUC; several specimens, Nikoklia, April 2012, leg. et coll. I. Barton.

Bionomics. Adults have been collected between April and August.

212 *Reisserita panormitanella* (Mann, 1859)

Tinea panormitanella Mann, 1859: 170.

Description. Wingspan 9–12 mm; head brush pale creamy white, between insertion of antennae darker; labial palpus pale creamy white, second segment with bristle-like scales, directed downwards; flagellum ringed; thorax and tegulae pale creamy white; forewing with creamy white ground color, on apical third a shadow of yellowish patch from end of cell to fringe, a small yellowish dot at 1/2 below cell; hindwing grey.

Male genitalia. Uncus with short slit and with two lobes, apically rounded, on inside each with a small strongly sclerotized triangular thorn; gnathos arms long, curved; vinculum with long, more or less triangular saccus; valva with long apodeme, spoon-shaped, costa concave, ventral edge convex; phallus as long as valva, with two small cornuti.

Female genitalia. Unknown.

Variation. Some specimens with yellow-brown forewing, apical third somewhat darker; hindwing dark grey (see fig. 212b).

Similar species. Superficially similar to the other small-sized species *R. parva* and *R. mauritanica*, but the shape of uncus (narrow slit, inside with thorn), the curved

long gnathos arms and the spoon-like valva make the species clearly distinguishable.

DISTRIBUTION. Italy: Sicily and Sardinia, outside Europe known from Tunisia and Algeria.

BIONOMICS. Adults have been collected between April and June.

213 *Reisserita relicinella* (Herrich-Schäffer, 1853)

Tinea relicinella Herrich-Schäffer, 1853: 71 (1851: Fig. 287, not binominal).

DESCRIPTION. Wingspan 14–17 mm; head brush light yellow; labial palpus on inside lighter than head brush, on outside dark brown, second segment bristled; antenna dark brown, nearly black; thorax light yellow, tegulae dark brown; forewing dark brown, dorsum from base to beginning of fringe with a yellow strip, edge to dorsum undulated; a small yellow dot at the end of cell, fringe apically yellow; hindwing grey, iridescent.

MALE GENITALIA. Uncus with V-shaped indentation, the two lobes triangular, with pointed tip; gnathos arms angled at 1/2, apical half directed posteriorly, with pointed tip, the angle anteriorly with tooth-like prolongation; saccus triangular; valva spatula-shaped, narrowest at 1/2, costal edge concave, ventral edge convex; phallus two times longer than valva, with numerous minute thorn-like cornuti.

FEMALE GENITALIA. Sternite VIII with indentation in the middle, laterally with two triangular processes, ostium without any additional structures, at the end of ductus bursae an irregular sclerotization, corpus bursae with numerous smaller strongly sclerotized thorns and a band-shaped sclerotization with several long thin thorns.

VARIATION. Some specimens with paler yellow coloration (fig. 213b), some specimens with forewing nearly complete dark brown, the yellow strip on dorsum is visible only as small shadow near base (fig. 213c).

SIMILAR SPECIES. The pattern on forewing distinguishes the species from other members of the genus, together with the shape of gnathos arms in males and the signa in females.

DISTRIBUTION. Austria, Czech Republic, Slovakia, Hungary (Fazekas, 2016), and from Italy through the Balkan Peninsula, Bulgaria, and Romania to the European part of Russia. Outside Europe known from Turkey.

BIONOMICS. Adults have been collected between May and August.

214 *Reisserita mauritanica* (Bethune-Baker, 1885)

Tinea mauritanica Bethune-Baker, 1885: 269.

Tinea melitensis Amsel, 1951: 178, fig. 6.

DESCRIPTION. Wingspan 11–12 mm; head brush pale yellow-brown; labial palpus on inside pale whitish, on outside brown, second segment bristled; thorax, tegulae and forewing pale yellow-brown, forewing without any pattern; hindwing grey.

MALE GENITALIA. Uncus only with flat indentation, subapically with two minute strongly sclerotized thorns; gnathos arms long, angled at 1/2, second half narrower to pointed tip; saccus triangular, long; valva with long apodeme, divided into a ventral part, hook-shaped directed

upwards, and a two times longer costal part, more or less parallel, with rounded apex; phallus as long as saccus, with one cornutus.

Female genitalia. Unknown.

Variation. The few studied specimens show no variation.

Similar species. Superficially similar to *R. parva* and *R. panormitanella*, but clearly distinguishable by examination of male genitalia (uncus with flat indentation, valva, divided into two parts, long saccus, phallus with one cornutus).

Distribution. Malta, outside Europe known from Tunisia and Algeria.

Bionomics. Adults have been collected between May and July.

215 *Reisserita flavofimbriella* (Chrétien, 1925), comb. n.

Tineola flavofimbriella Chrétien, 1925: 262.

Description. Wingspan 12–15 mm; head brush white; labial palpus creamy white, second segment with bristle-like white scales; scape of antenna white, flagellum grey; thorax and tegulae white; forewing white, scales in the second half, around apex and on fringe mostly with yellow to light brown tip; hindwing light grey.

Male genitalia. Unknown.

Female genitalia. Sternite VIII with indentation in the middle, laterally with two small triangular lobes with pointed tip; ostium and beginning of ductus bursae funnel-shaped, with minute needle-like sclerotizations, the end of ductus narrower, with more strongly sclerotized edges, corpus bursae with numerous strongly sclerotized various-sized thorns.

Variation. The few studied specimens show no variation.

Similar species. The coloration make the species superficially clearly distinguishable from the other members of the genus, the size and the number of signa in females are unique.

Distribution. Hitherto known only from Spain: San Ildefonso (type location) and Andalucia (studied material, coll. Baldizzone) and from Portugal: Abreiro, Stn. P. Trás-os-Montes (studied material, coll. Corley).

Bionomics. The adults have been collected in July.

Remarks. Concerning records from Portugal Martin Corley (pers. comm.) wrote me: "I am curious about *Reisserita flavofimbriella*. I have now seen about 15 specimens of this in Portugal, from several localities. All have been female which leaves me wondering if it could be parthenogenetic. I suppose it is possible that females come to light, but males never do so."
The examination of the fig. 127 (type specimen) in Petersen (1957a) and of additional material shows, that the species has to be transfered from *Tineola* to *Reisserita*.

Anomalotinea Spuler, 1910

Anomalotinea Spuler, 1910: 458.

Type species: *Tinea cubiculella* Staudinger, 1859.

Fermocelina Hartig, 1949: 3.

Type species: *Tinea gardesanella* Hartig, 1949.

Subpentagona Agenjo, 1952: 65.

Type species: *Tinea liguriella* Millière, 1879.

Praetinea Amsel, 1955: 62.

Type species: *Tinea liguriella* Millière, 1879.

Cilicorneola Zagulajev, 1956b: 912.

Type species: *Tinea severella* Zagulajev, 1956, nec Christoph, 1888.

Description. Medium-sized moths, without any pattern on forewings (except *A. liguriella*),

superficially not distinguishable from the members of the genus *Reisserita*.

Male genitalia. Uncus more or less cap-shaped, medio-apically with short pointed hook (crista), gnathos arms angled, with pointed tip, phallus with cornuti.

Female genitalia. Sternite VIII mostly slightly or deeply indented, in some species with signa.

Distribution. 13 described species, occuring from the Mediterranean area to Middle Asia in the Palaearctic Region, three species are known from Europe.

Bionomics. Nothing is known about the larval pabulum.

Remark. The description of the genus *Cilicorneola* Zagulajev was based on the type species: "*Tinea severella* Christoph, 1888", but it was a misinterpretation, as the figured taxon is clearly *Anomalotinea liguriella* (Millière, 1879)(see: Petersen, 1957d).

216 *Anomalotinea liguriella* (Millière, 1879)

Tinea liguriella Millière, 1879: 124: pl. 6: fig. 11.

Tinea inquinatella Zeller, 1852: 161, nec Denis & Schiffermüller, 1775 (homonym).

Cilicorneola severella Zagulajev, 1956b: 915, nec Christoph, 1888 (misinterpretation).

Fermocelina christophi Petersen, 1957a: 117, fig. 72.

Fermocelina antipai Zagulajev, 1972b: 342, figs. 11–12.

Description. Wingspan 11–17 mm; head brush light creamy white, labial palpus on inside creamy white, on outside brown, second segment bristled, entire third segment creamy white; scape of antenna creamy white, with pecten, flagellum darker; thorax and tegulae with same coloration as head brush, basally brown; forewing light creamy white with a dark brown pattern. Basal quarter of costa dark brown, a dot between dark costa and dorsum, a dot at end of cell and a smaller streak below cell at 1/2; the entire forewing with scattered brown scales; hindwing shiny white.

Male genitalia. Uncus characteristic for the genus, crista pointed; gnathos arms with rounded angle at 1/2, apically narrower to pointed tip; saccus as long as uncus-tegumen; valva spatula-shaped, from base gradually narrower to rounded apex; phallus two times longer than valva, straight, with two rows of pointed cornuti.

Female genitalia. Sternite VIII plate-shaped, indented at ostium, corpus bursae with two kinds of signa: two larger irregular signa each with minute strongly sclerotized thorn and with numerous minute needle-like bristles, and a lot of smaller signa each with one bristle.

Variation. Some specimens with yellowish creamy white head brush and forewings overlaid with numerous dark brown scales, frings basally with a dark scale line (see fig. 216b); sometimes the forewings nearly complete overlaid with darker scales, the base of costa and the two dots and the streak nearly black (see fig. 216c); sometimes the entire forewing dark

brown, the pattern is visible only as shadow (see fig. 216d). The number of cornuti is variable (see figs. 216a–216c). In females the ostium is sometimes funnel-shaped (see fig. 216a), the shape of the larger signa is variable (see fig. 216b).

SIMILAR SPECIES. The pattern on forewing distinguishes the species from the other members of the genus; in male genitalia the needle-like tip of gnathos arms and the two rows of cornuti are additional characteristics for separation.

DISTRIBUTION. Iberian Peninsula through France, Italy, Croatia, Greece, Bulgaria and Romania up to Ukraine and South European Russia and European part of Kazakstan, outside Europe known from Turkey, Caucasus and North Africa (Tunisia, Algeria).

New records. Bulgaria, 1♂, Pirin, Sandanski Ploski, 200m, 30.vii.–7.viii.2012, leg. N. Savenkov, coll. Roweck; Kazakstan, 1♂, European part: Dzhanibek env., 18. vi.1999, leg. V. Karalius & J. Miatleuski, coll. Ivinskis.

BIONOMICS. The Adults have been collected between May and October.

217 *Anomalotinea gardesanella* (Hartig, 1949)

Tinea gardesanella Hartig, 1949: 3, pl. 1: fig. 2.

DESCRIPTION. Wingspan 9–12 mm; head brush light yellow-brown; labial palpus on inside with same coloration, on outside brown, second segment bristled; scape of antenna with same coloration as inside of palpus, with pecten, flagellum ringed; thorax and tegulae cinnamon-colored, forewing darker colored, without any pattern; hindwing dark brown-grey, fringe around apex light creamy white.

MALE GENITALIA. Uncus laterally with pointed tip (see fig. 217a), crista on uncus clear hook-shaped; gnathos arms stout, with rounded angle, apically narrow, with rounded tip; saccus more or less triangular; valva with long apodeme, corpus only a little longer than uncus, parallel, ventral edge at 1/2 oblique directed upwards to rounded apex, phallus somewhat smaller than uncus-tegumen-saccus complex, straight, with two thin, slightly curved cornuti with pointed tip

FEMALE GENITALIA. Ostium deeply indented, with more strongly sclerotized edge, first part of ductus bursae more or less more strongly sclerotized, corpus bursae without signa; the intersegmental skin bears small granular sclerotizations (see fig. 217a).

VARIATION. No variation has been observed.

SIMILAR SPECIES. The smallest member of the genus. Superficially similar to *Reisserita parva*, but the cinnamon-colored thorax and forewings and the dark hindwings are characteristic. The male genitalia is distinguishable from the other members of the genus by the small nearly square valva.

DISTRIBUTION. Italy, Croatia and Greece (mainland and Lesvos Island), outside Europe known from Turkey (unpublished records).

New records. Turkey, 1♂, Denizli, Pamukkale, 400m, 1.vii.1991, leg. Lingenhöle, SMNS; 1♂, Urgup, Mustafapassa, 21. vi.1999, leg. et coll. Junnilainen; 1♂, Aksehir, 35km sw; Cetince; 1200m, 15.vi.1999, leg. et coll. Junnilainen; FMNH.

BIONOMICS. Adults have been collected between May and August.

Remarks. The three cornuti, which are seen on fig. 80 in Petersen (1957a: 122) are a misinterpretation of the slide 132.

218 *Anomalotinea cubiculella* (Staudinger, 1859)

Tinea cubiculella Staudinger, 1859: 235.

Myrmecozela danubiella, var. *algiricella* Rebel, 1901: 184.

Eriocottis recticostella Caradja, 1920: 173.

Myrmecozela romeii Turati, 1930: 128, pl. A: fig. 23.

Myrmecozela eremica Amsel, 1935: 314, pl. 10, fig. 73.

Fermocelina occidentalis Zagulajev, 1972b: 344, figs. 13–14.

Description. Wingspan 15–20 mm; head brush grey-brown, labial palpus with same coloration, on inside somewhat lighter, second segment bristled and with long bristle-like scales; scape of antenna creamy white, pecten only with some scales, flagellum ringed; thorax, tegulae and forewing grey-brown, forewing without any pattern; hindwing grey.

Male genitalia. Uncus around crista somewhat indented; gnathos arms robust, curved half-moon-like, saccus as long as uncus-tegumen; valva with basal half square, twice as wide as outer half, costal edge convex, with rounded apex; phallus as long as the entire genitalia, the two thin cornuti nearly 0.5 times as long as entire phallus.

Female genitalia. Oviscapt very long, anterior apophyses long, forked, the dorsal arms fused, subapically separated into two short processes with rounded bristled tip, corpus bursae without signa.

Variation. Some specimens paler (see fig. 218b). Ssp. *algiricella* and *romeii* colored pale yellowish (see fig. 218c).

Similar species. Superficially distinguishable from the other members of the genus by large size and coloration; in male genitalia the shape of valva is characteristical.

Distribution. The nominotypical subspecies (with the synonym *recticostella*) is known in Europe only from Spain and Malta (Sammut, 2000), outside Europe ssp. *algiricella* (with the synonym *occidentalis*) from North Africa (Mauretania, Algeria), ssp. *romeii* (with the synonym *eremica*) from Tunisia, Libya and Israel, another ssp. from Saudi Arabia.

New record. Saudi Arabia, 1♂, SW-Arabien, Asirgebirge, 2350m, 5km s. Namas, 17.–21. iv.1979, leg. Amsel, ZMNK.

Bionomics. Adults have been collected between March and July.

Remarks. The specimen from Arabian Peninsula clearly represents a separate subspecies, but more material is needed for its description.

Trichophaga Ragonot, 1894

Trichophaga Ragonot, 1894: 123.

Type species: *Trichophaga coprobiella* Ragonot, 1894.

Description. Medium-sized moths, wingspan varies intraspecifically. Forewings bicolored, "half-black, half white".

Male genitalia. Characterized by the large saccus and comparatively small uncus and gnathos, anellus plate-like.

Female genitalia. Segment VIII not sclerotized, sternite VIII reduced to a pair of slender longitudinal rods.

DISTRIBUTION. According to Robinson (2009): "Originally probably Afrotropical and Palaearctic but now widely introduced and effectively worldwide." Nine described species, of which four occur in Europe.

BIONOMICS. A compilation of the known larval life histories is given by Robinson (2009: 76), for details see under the species.

REMARKS. Although Robinson (2009: 76) wrote: "the predominantly tropical *mormopis* is intercepted occasionally in western Europe, it is a minor pest of feathers and wool and products made from them", this taxon (*Trichophaga mormopis* Meyrick, 1935: 575) is not included here, because I could not find any further indication for a natural record from Europe. In BMNH some specimens from Malaysia, Fiji, Hawaii and Taiwan are present (Robinson, 1978: 144, fig. 3),

219 *Trichophaga tapetzella* (Linnaeus, 1758)

Tinea tapetzella Linnaeus, 1758: 536.

Tinea greenlandica Anonymous, 1834: 175.

Tinea palaestrica Butler, 1877: 404.

DESCRIPTION. Wingspan 13–22 mm; head brush white, labial palpus on inside cream-colored, on outside brown, second segment with long bristle-like scales directed obliquely downwards, apically with bristles; scape of antenna white, with pecten, flagellum dark brown, not ciliate; thorax and tegulae deep dark brown, thorax basally, below neck, white; forewing bicolored, basal third deep dark brown, apical part white, apex with nearly black patch, fringe around apex with two brown scale-lines, a minute black dot on dorsum at beginning of fringe, the white part of forewing mottled shadow-like with grey scales, the border separating dark and white parts oblique from dorsum to costa; hindwing shiny cream-colored.

MALE GENITALIA. Uncus with short deep notch, the edges of it strongly sclerotized, with two rounded lobes; gnathos arms curved, apically connected/fused; tegumen narrow, vinculum with long elongate, triangular saccus; valva with long apodeme, spatula-like, basally oblique, ventral edge convex to rounded apex, costal edge more or less straight; anellus (transtilla sensu Robinson) a shield- or M-shaped sclerotization; phallus nearly as long as genital apparatus, straight, basally rounded, apical half with numerous rows of small strongly sclerotized teeth.

FEMALE GENITALIA. Anterior apophyses not forked; ostium deeply indented, first part of ductus bursae (colliculum) more strongly sclerotized; bursa without signa.

VARIATION. The white part of forewing in some specimens more cream-colored, the area of grey scales is enlarged, in more extreme cases the white part is overlaid nearly completely by grey scales; hindwings darker grey (see figs. 219b–219c).

SIMILAR SPECIES. Superficially *T. tapetzella* is quite similar to *T. scandinaviella* in having the border between the dark and the white part of the forewing oblique, in contrast to *T. bipartitella* and *T. robinsoni* with a vertical border. From *T. scandinaviella* the species is distinguishable in the genitalia structure: male with long elongate saccus, valva spatula-like, anellus shield- or M-shaped; female with ostium not V-shaped.

DISTRIBUTION. All Europe, including Canary Islands, Madeira and Azores outside Europe known from Algeria, Tunisia, Lebanon, Turkey, Caucasus, Iran; introduced into North and South America, Australia, and New Zealand. Recently the species appears to have declined in/vanished from Finland (Mutanen, pers. comm.) and from Sweden (Bengtsson, 2008).

BIONOMICS. Larvae feed on hair, wool and feathers, and can be bred from birds' nests. Baer (1924) and Schütze (1931) found larvae in pellets of owls, Heinze (2017) in pellets of *Tyto alba* (Barn Owl). In California, larva was found in a nest of *Sceliphron* sp. (Hymenoptera) (Linsley, 1944). It is more common outdoor and in stables than in houses. A compilation of the habitats of the larvae is given by Zagulajev (1981) and by Robinson (2009). For description of the larva and for more detailed information, see Hinton (1956). Huertas-Dionisio (2012) gives a description of larva and pupa.

REMARKS. In the description of *Tinea greenlandica* it remains uncertain where the infestation of the polar bear skin had taken place. Some remarks in the text and the name *greenlandica* imply that this may have happened in Greenland, but *Trichophaga tapetzella* is unknown in that country (Wolff, 1964). It seems more likely that infestation occurred somewhere in the British Isles (Gaedike, 2009).

220 *Trichophaga scandinaviella* Zagulajev, 1960

Trichophaga scandinaviella Zagulajev, 1960: 260, fig. 229.

Trichophaga rjabovi Zagulajev, 1960: 261, figs. 230–231.

DESCRIPTION. Wingspan 16–22 mm; head brush white to whitish cream-colored; labial palpus on inside cream-colored, on outside brown, second segment bristled; scape of antenna white to whitish cream-colored, with pecten, flagellum dark brown; thorax and tegulae deep dark brown, thorax basally, below neck, cream-colored, apical tip of tegulae and thorax cream-colored; forewing with same coloration as preceding species, but the apical part cream-colored, not white, the dark brown patch on apex connected with the dark brown scales on fringe; hindwing grey.

MALE GENITALIA. Uncus with deeply rounded notch, the edges of it strongly sclerotized, with two lobes; gnathos arms curved, apically connected/fused, with pointed tip; tegumen narrow, vinculum with broad triangular saccus with rounded tip, posterior edge of vinculum in the middle with triangular prolongation with narrow truncated tip (connection point for valva); valva as long as vinculum-saccus, apodeme short, basally narrow, apically twice broader than basally, obliquely truncated, costal edge more strongly sclerotized, apically rounded, apex in the middle with short row of minute thorns; anellus small, more or less square; phallus twice longer than valva, straight, basally rounded, apical quarter with several rows of more strongly sclerotized teeth.

FEMALE GENITALIA. Anterior apophyses not forked, ostium slit-like indented, antrum V-shaped, first part of ductus bursae (colliculum) strongly sclerotized.

VARIATION. No variation has been observed.

SIMILAR SPECIES. For differences from *T. tapetzella* see that species.

DISTRIBUTION. Scandinavia, Baltic countries, European part of Russia (Baryshnikova, 2008), outside Europe known from Iran.

BIONOMICS. Larval pabulum unknown, it could be presumed, that the larval life history is similar to the known life history of the other members of the genus. In Finland (Mutanen, pers. comm.) the species lives characteristically in archipelago and close to the waterfowl colonies.

221 *Trichophaga bipartitella* (Ragonot, 1892)

Tinea bipartitella Ragonot, 1892: LXXXII.
Trichophaga desertella Mabille, 1907: 79.
Trichophaga amina Meyrick, 1925: 216.

DESCRIPTION. Wingspan 15–28 mm, head brush white, laterally with brown scales; labial palpus on inside whitish, on outside dark brown, second segment with bristle-like scales, directed downwards; scape of antenna white, with pecten, flagellum dark brown, male with very short cilia; thorax and tegulae dark brown, forewing "black and white" colored as the other species of the genus, but the border between dark brown basal part and the white apical part vertical; the dark brown basal part mixed with some lighter brown scales and with a lot of tufts of rised scales; apex with a patch of black and grey scales, fringe around apex with two dark brown scale-lines, beyond them white to cream-colored; a minute black dot in the middle of wing in the white area; the white part mottled with grey and some cream-colored scales; costa slightly convex; hindwing shiny light grey.

MALE GENITALIA. Uncus with short slit-shaped notch, with two bristled lobes, gnathos arms angled at 1/2, with pointed tip, tegumen narrow, vinculum with long triangular saccus with rounded tip, posterior edge of vinculum strongly sclerotized, in the middle with triangular prolongation with narrow truncated tip (connection point for valva); valva as long as uncus-tegumen, apodeme short, ventral edge convex, costal edge concave, apex rounded, with pointed costal tip; on inside subapically a triangular process, from costal base to ventral edge at 1/2 an oblique strongly sclerotized edge with pointed tip (the connection point for vinculum); anellus parallel-sided, one half of the length of valva, basal half with two strongly sclerotized plates; phallus as long as vinculum-saccus, basally rounded, straight, apically with some rows of minute sclerotized teeth.

FEMALE GENITALIA. Anterior apophyses not forked, a shorter thin arm of apophyses on each side of the broadly U-shaped ostium, ductus bursae with a ring-shaped strongly sclerotized colliculum.

VARIATION. In some specimens white part of forewing with more dark grey scales, forming irregular stripes, with an additional black dot at the end of cell, the patch at apex is nearly completely black; thorax basally white (see fig. 221b); some specimens completely lighter: thorax with basal half white, apical half brown, tegulae brown, apically light brown; basal part of forewing brown, mottled with numerous minute yellowish and whitish dots, apical part white, at apex only a minute black dot

and the area around costa and dorsum light grey, fringe white to cream-colored; hindwing white (see fig. 221c); some specimens with completely unicolorous black basal half of forewing without tufts of raised scales, the apical half completely white, the patch around apex black, reaches to dorsal edge, fringe nearly completely covered with black scale-lines (see fig. 221d).

Similar species. The vertical border between "black and white" parts of forewing distinguish the species from *T. tapetzella* and *T. scandinaviella*, the slightly convex costa and the flagellum without longer cilia are differences from *T. robinsoni* with straight costa and ciliate flagellum. In male genitalia the smaller anellus and the shape of valva, in female genitalia the U-shaped ostium and the shorter sclerotized colliculum are characteristics for distinguishing the species from *T. robinsoni* with clear larger anellus, different shape of valva, the V-shaped ostium and the larger sclerotized colliculum.

Distribution. All European Mediterranean countries (incl. Canary Islands), Madeira, from Balkan Peninsula (Greece, Macedonia, Croatia) through Bulgaria and Romania to Ukraine and Russia; outside Europe from North Africa through Middle Asia to the Far East.

Bionomics. Keratophagous; larvae recorded from raptor pellets, weathered carnivore faeces and mammal hides (Robinson, 1988). Roesler & Walter (1966) described (under the name *T. abruptella*) the finding of larvae in the pellets of *Falco eleonorae*. Huertas-Dionisio (2012) gives description of larva and pupa.

Remarks. On the Canary Islands and Madeira and in North Africa distributed together with the superficially similar *T. robinsoni*. The record for Azores Islands (Vieira, 1997) needs confirmation, it could refers to *T. robinsoni*.

222 *Trichophaga robinsoni* Gaedike & Karsholt, 2001

Trichophaga robinsoni Gaedike & Karsholt, 2001: 165, figs. 5, 45–46.

Tinea abruptella Wollaston, 1858: 120, nec Thunberg, 1794 (homonym).

Description. Wingspan 17–35 mm; flagellum of male antenna ciliate, cilia about 1.0–1.3 x flagellum diameter; the coloration nearly the same as in *T. bipartitella*. The differences are: Costa of forewing straight, the dark part of forewing mottled with light brown dots, with tufts of raised scales, the ground colouronly brown, not dark brown, at apex only two minute black stripes, together with a minute black dot at beginning of fringe, fringe only at apex with very short dark scale-line; hindwing white; basal half of thorax white, tip of tegulae light brown, the coloration similar to fig. 221b.

Male genitalia. Similar to those of *T. bipartitella*, but valva somewhat longer than uncus-tegumen, ventral edge at 1/2 with short, pointed process (connection point to vinculum), from apodeme to that process on inside wrinkled and with a narrow fold; anellus nearly a half of the length of valva, completely strongly sclerotized; phallus appr. 1.3 times longer than vinculum-saccus.

Female genitalia. Similar to those of *T. bipartitella*, but ostium broadly V-shaped, colliculum sclerotized for most of the distance between ostium and ductus seminalis.

VARIATION. No variability has been observed.

SIMILAR SPECIES. Similar to the preceding species, for differences see under *T. bipartitella*.

DISTRIBUTION. Madeira, Canary Islands (Gomera, Grand Canaria, Lanzarote, Tenerife), outside Europe known from Morocco, Tunisia and Western Sahara (Robinson, 1988).

BIONOMICS. Probably keratophagous like its congeners. It has been recorded from sea gull pellets. Adults come to light throughout the year.

Elatobia Herrich-Schäffer, 1853

Elatobia Herrich-Schäffer, 1853: 22.

Type species: *Tinea fuliginosella* Lienig & Zeller, 1846.

Tineomima Staudinger, 1892: 391.

Type species: *Tineola ?* (*Tineomima*) *kenteella* Staudinger, 1892.

Abacobia Dietz, 1905: 22 (key), 29.

Type species: *Abacobia carbonella* Dietz, 1905.

Dietzia Busck, 1906: 735, nom. nov. pro *Abacobia* Dietz, 1905.

DESCRIPTION. Medium-sized moths, coloration nearly black, tips of scales on head brush whitish, labial palpus with bristle-like scales.

MALE GENITALIA. Tegumen and vinculum narrow, band-shaped, saccus long, phallus with row of thorn-like cornuti.

FEMALE GENITALIA. Sternite VIII plate-shaped or divided into two finger-like processes, signum irregular sized, with minute thorns.

DISTRIBUTION. Known from six Holarctic species, five of them distributed in the Palaearctic, three species are known in Europe.

BIONOMICS. Larvae have been found in holes in the bark of conifers, for details see under the species.

REMARKS. The genus *Dietzia* Busck, 1906 was established unnecessarily as an objective replacement name for *Abacobia* Dietz, 1905, which is not a homonym of *Abacobius* Lacordaire, 1866 (Insecta, Coleoptera).

223 *Elatobia fuliginosella* (Lienig & Zeller, 1846)

Tinea fuliginosella Lienig & Zeller, 1846: 273.

Tinea severella Christoph, 1888: 312.

Tineomima kenteella Staudinger, 1892: 391.

Abacobia carbonella Dietz, 1905: 30, pl. 5, fig. 1; pl. 6, fig. 9.

DESCRIPTION. Wingspan 14–20 mm; head brush black, tips of scales whitish; labial palpus directed forwards, black colored, the bristle-like scales of second segment with whitish tip; entire antenna black, scape with pecten; thorax, tegulae and forewing black, scales of forewing basally grey, no pattern on forewing, on fringe a dark scale-line; hindwing grey.

MALE GENITALIA. Uncus divided into two digitate bristled socii with rounded tip, tegumen and vinculum narrow, saccus long; valva as long as saccus, more or less parallelsided, apodeme short, apically truncated, with rounded edges, from apodeme, below costa to apex a more

strongly sclerotized edge; phallus longer than valva, straight, cornutus with one or more teeth (see figs. 223a–223c). Sternite VIII with strongly sclerotized posterior edge, tergite VIII with a more or less triangular sclerotization medially (see fig. 223d).

Female genitalia. Sternite VIII plate-shaped, apically slightly indented, ostium lip slit-shaped, with strongly sclerotized edges, signum an irregular plate with minute thorns.

Variation. Some specimens colored brown, on inside of labial palpus cream-colored (see fig. 223b). In male genitalia cornutus with the tooth-like sclerotizations variable (see figs. 223a–223c).

Similar species. Superficially not clearly distinguishable from the other members of the genus, clear differences are seen in the genitalia structure. The uncus with two finger-like socii is characteristic instead of the broader truncated uncus in *E. bugrai* and the uncus with two additional lateral processes in *E. montelliella*. In female genitalia the plate-shaped sternite VIII is characteristic instead of the two long processes in sternite VIII in *E. bugrai* and of the two shorter processes in *E. montelliella* (fig. 4 in Landry *et al.*, 2013).

Distribution. Nearly all Europe, on Balkan Peninsula only from Croatia (Šumpich & Skyva, 2012) and Greece: Samos, eastwards up to European Russia, outside Europe known from Morocco and Tunisia, Turkey, Iran, through Siberia up to Mongolia and Russian Far East (Ponomarenko, 2016) and in the Nearctic Region.

New record. Greece: Samos, 1♂, 1km N Spatharei, 700m, 3.–5.vi.2012, leg. C. Hviid & B. Skule, ZMUC.

Bionomics. Larva in holes of larvae of the sawfly *Strongylogaster* in bark of *Pinus silvestris* (records of studied material); in holes of *Strongylogaster lineata* in bark of *Pinus maritima* (Powell, 1967). They possibly feed on mycelium of fungi or skins of sawfly larvae.

Landry *et al.* (2013) give more detail about the life history of the species in the Nearctic region. It is associated with forest fires and prefers burnt, sun-exposed trees. It has also been bred from the thick bark of old, living pine trees; larvae were observed living in bark with a lot of insect holes and were detected by the presence of silk and protruding frass (Saarela, 1995, cited in Landry *et al.*, 2013). Many adults have been collected on partially burnt pine trees which are clearly preferred, but species associated with burnt forests typically occur in lower numbers on trees that are not burnt, but are sun-exposed and preferably in bad condition (Landry *et al.*, 2013).

224 *Elatobia montelliella* (Schantz, 1951)

Tinea montelliella Schantz, 1951: 18, fig. 1.

Description. Wingspan 16–20 mm. Superficially not distinguishable from the preceding species. The picture on plate 8, is reproduced from Landry *et al.* (2013), courtesy of J.-F. Landry.

Male genitalia. Uncus laterally with two processes with rounded tip, 0.5 times as long as uncus, uncus apically with V-shaped slit and two short socii with pointed tip; tegumen and vinculum narrow, with long saccus, valva as long as vinculum-saccus, folded lengthwise, apically

incurved with two pointed tip; phallus as long as valva, cornutus small, with some teeth.

FEMALE GENITALIA. Sternite VIII on posterior edge somewhat U-shaped, laterally with two rounded lobes, area above ostium wrinkled, ductus bursae strongly sclerotized, signum tooth-like, partly wrinkled (According to Landry *et al.*, 2013: fig. 4).

VARIATION. No variation has been observed.

SIMILAR SPECIES. See preceding species.

DISTRIBUTION. Finland (Muonio: location of the holotype). Nearctic Region Canada, U.S.A. (Landry *et al.*, 2013). Only a single old specimen is known from the Palaearctic Region.

BIONOMICS. Larval life history unknown. It could be presumed that the life history is similar to the preceding species.

REMARKS. The picture of the female genitalia is reproduced here from Landry *et al.* (2013, fig. 4), courtesy of Jean-François Landry.

225 *Elatobia bugrai* Koçak, 1981

Elatobia bugrai Koçak, 1981a: 15.

Tinea atratella Staudinger, 1870: 231, pl. III, fig. 10, nec Geoffroy in Fourcroy, 1785, homonym.

DESCRIPTION. Superficially not distinguishable from the other members of the genus, so the adult is not illustrated.

MALE GENITALIA. Uncus parallel-sided, apically truncated, with rounded edges, at base a hook on each side, curved apically; tegumen narrow, saccus very long; valva as long as uncus-tegumen, more or less parallel-sided, costal edge convex, apically pointed, basad of tip a sclerotized edge on inside of valva, ventral edge convex; phallus as long as uncus-tegumen-saccus, basally rounded, narrower to apex, with a row of appr. 15 strongly sclerotized short hooks. Sternite VIII with a structure similar to that in *E. fuliginosella*.

FEMALE GENITALIA. Sternite VIII prolonged posteriorly into two long finger-like lobes, from broad base narrower to bristled tip; medially a deep thin slit, partly overlaid by transverse wrinkles and numerous minute thorns; ostium somewhat funnel-shaped, basally and ductus bursae strongly sclerotized, signum irregular shaped, with minute thorns.

VARIATION. No variation was observed.

SIMILAR SPECIES. See under *E. fuliginosella*.

DISTRIBUTION. Greece, outside Europe known from Turkey.

BIONOMICS. Larval life history unknown. It could be presumed, that the life history is similar to the preceding species.

REMARKS. A record from Poland (Zyczanowie, 2.vii.1897, det. Rebel, in museum Krakow) needs confirmation. The curator of the museum in Krakow, Lukasz Przybylowicz, could not find any indication of that specimen.

Tineola Herrich-Schäffer, 1853

Tineola Herrich-Schäffer, 1853: 23.

Type species: *Tinea bisselliella* Hummel, 1823.

DESCRIPTION. See description of *T. bisselliella*, the only species of the genus.

226 *Tineola bisselliella* (Hummel, 1823)

Tinea bisselliella Hummel, 1823: 6.

Tinea flavifrontella Thunberg, 1794: 87, nec Denis & Schiffermüller, 1775, homonym.

Tinea destructor Stephens, 1825: 453.

Tinea crinella Sodoffsky, 1830: 70.

Tinea lanariella Clemens, 1859: 257.

Tineola furciferella Zagulajev, 1954a: 156, figs. 1–5.

Tineola anaphecola Gozmány, 1967: 11, figs. 10–11.

DESCRIPTION. Wingspan 6–17 mm, head brush yellowish brown; labial palpus with same coloration, second segment with numerous bristles; antenna paler, scape with pecten; thorax, tegulae and forewing pale ochreous, forewing without any pattern; hindwing white.

MALE GENITALIA. Uncus triangular, with slightly hooked apex; gnathos arms strongly curved, apically fused; tegumen cowl-shaped, vinculum with long rod-like saccus; valva small, costal edge straight, ventral edge with right-angled ventrodistal emargination (L-shaped), on inside, near ventral edge, at beginning of narrow part with a small triangular strongly sclerotized thorn; phallus much longer than genital apparatus, slender, with one cornutus with pointed tip.

FEMALE GENITALIA. Sternite VIII shield-like, with deep medial slit, laterally forming lobes with more strongly sclerotized cup-shaped bristled tip; ductus bursae thick-walled, with transverse wrinkles, corpus bursae with 3–5 bristle-like signa.

VARIATION. Maxillary palpi are in most specimens reduced or absent, but occasionally quite strongly developed (see synonym *T. furciferella* Zagulajev, 1954). The coloration sometimes more golden yellowish (see fig. 226b).

SIMILAR SPECIES. Superficially similar to *Tinea murariella* or *Tinea messalina* (especially worn ones), the genitalia structure clearly distinguishes the species (in males the shape of valva and phallus, in females the shape of sternite VIII and ductus bursae).

DISTRIBUTION. Cosmopolitan. *T. bisselliella* is considered to be a cryptogenic species (Lopez-Vaamonde *et al.*, 2010).

BIONOMICS. Larva feeds on detritus in nests of numerous birds, in hymenopteran nests, in pellets. The larva is a well-known pest of wool and other animal fibres, but it can also feed on a variety of other animal-based materials. A compilation of the habitats of the larvae is given by Zagulajev (1960; 1981). In the Afrotropical region, larvae were found living in the big agglomerates of webby cocoons of the moth *Anaphe panda* Boisduval (Thaumetopoeinae) (Gozmány, 1967: description of *Tineola anaphecola*). For description of the larva and for detailed information, see Hinton (1956). Eggs and pupae were described by Titschack (1922). A compilation of the published results concerning attraction to pheromones is given by El-Sayed (2012).

REMARKS. Provorova (1995) studied the polymorphism of this taxon (morphology, life history, ecological heterogeneity). It was observed being polyandrous and mating multiple times with the same male (Ryazanova, 2011).

Praeacedes Amsel, 1954

Praeacedes Amsel, 1954: 55.

Type species: *Praeacedes deluccae* Amsel, 1954.

Antitinea Amsel, 1955: 30.

Type species: *Antitinea deluccae* Amsel, 1955.

Titaenoses Hinton & Bradley, 1956: 42.

Type species: *Tinea thecophora* Walsingham, 1908.

DESCRIPTION. See description of *P. atomosella*.

DISTRIBUTION. Hitherto five species are known worldwide, in the Palaearctic region represented by one pantropical species.

227 *Praeacedes atomosella* (Walker, 1863)

Tinea atomosella Walker, 1863: 476.

Tinea seminolella Beutenmüller, 1889: 9.

Tinea thecophora Walsingham, 1908: 1024.

Tinea despecta Meyrick, 1919: 274.

Praeacedes deluccae Amsel, 1954: 55, fig. 7.

Antitinea deluccae Amsel, 1955: pl. IV: fig. 4.

Tinea malgassica Gozmány, 1970: 105, fig. 1.

Tinea decui Capuşe & Georgesco, 1977: 364, figs. 5–6.

DESCRIPTION. Wingspan 10–13 mm; head brush light brown and ochreous, mixed with darker scales; labial palpus on inside ochreous, on outside dark brown, second segment with some bristles; scape with pecten, antenna appr. 0.8 length of forewing; thorax ochreous, tegulae dark brown, apically ochreous; forewing pale ochreous, finely speckled with brown, the dark brown to blackish scales form a dot at end of cell and a short stripe at 1/3 below cell; fringe with dark intermittent scale line; hindwing light grey.

MALE GENITALIA. Uncus triangular, with pointed tip, gnathos arms apically fused, uncus and gnathos arms strongly sclerotized, tegumen broad, vinculum ventrally narrow, saccus slender, rod-like, longer than valva; valva broad, slightly curved upwards, apex rounded; phallus near base with a long process, parallel to and longer than phallus, apical third with a line of minute bristles, phallus with pointed tip.

FEMALE GENITALIA. Sternite VIII with two lobes with rounded bristled tips lateral to ostium lip, ostium lip conical, strongly sclerotized, ductus bursae before corpus bursae with minute thorns, corpus bursae with two oval, sparsely scobinate, plate-like signa with serrated margins.

VARIATION. No variation has been observed.

SIMILAR SPECIES. It is very similar to *Niditinea fuscella* but in *atomosella* the light and dark scales of the forewings are more evenly disturbed. Bred specimens can be recognized from the characteristic larval case. Only *Phereoeca allutella* makes a similar case, but in that species the antennae are longer than the forewing.

DISTRIBUTION. Pantropical (Robinson & Nielsen, 1993). According to Lopez-Vaamonde *et al.* (2010) cryptogenic; first record in Europe on Madeira in 1953 Gaedike & Karsholt (2001: 169). In Europe

known from Cyprus, Malta, Canary Islands, Madeira Islands and Azores.

Bionomics. About the larval food, Robinson & Nielsen (1993) state: "The conflicting evidence as to the precise food of *Praeacedes* is confusing. We are inclined to give greatest weight to Zimmerman's observations [Zimmerman, 1978: arthropod remains in the guts of *Praeacedes* larvae] and to suggest that, like *Phereoeca*, *Praeacedes* is chitinophagous, feeding on arthropod remains, possibly in spiders' webs." Larvae make a flattened, elongate oval case composed of fibres and detritus and lined with silk. Walsingham (1908) records the cases from walls in Tenerife and the habits of *Preacedes* may be similar to those of *Phereoeca*. The case is similar to that of *Phereoeca allutella* (Rebel) but on average smaller and more rounded at proximal end. The cases can be found on house walls. Recently Bippus (2016) published interesting observations about the feeding behaviour of the larvae in Réunion:

gLiving larvae [of *P. atomosella* and *Phereoeca praecox* Gozmány & Vari, 1973] were mostly collected on the terrace (80%) of my home in Réunion. Some few specimens were collected inside the house (20%). All of them had developed larval case of different sizes (length between 6 and 12 mm) at the moment of collection. Tissue paper was added to all recipients in which I kept the larvae. At the first attempts I added next to dead insects (mosquitoes, flies, moths) also other possible food to the larvae boxes, like bread, hairs, cotton tissue, some leaves, spider webs and gecko excrements. Often I tried to observe the reaction of the caterpillars and mostly they were attracted only by the insect detritus. I never observed them feeding on the other purposed food and finally stopped adding supplementary food sources. Also larvae fed exclusively on dead insects over a period of 4 weeks reached maturity and I believe that the other materials are only used for case building. These moths prefer a dry habitat. Moistening the recipients resulted in a higher mortality. He also observed, that the adults were rarely attracted by light.

A detailed description of the larva is given by Hinton & Bradley (1956) under the name *Titaenoses thecophora*.

Remarks. *P. atomosella* is an alien species in Europe (Lopez-Vaamonde *et al.*, 2010).

Tinea Linnaeus, 1758

Tinea Linnaeus, 1758: 496.

Type species: *Phalaena* (*Tinea*) *pellionella* Linnaeus, 1758.

Autoses Hübner, 1825: 401.

Type species: *Phalaena* (*Tinea*) *pellionella* Linnaeus, 1758.

Acedes Hübner, 1825: 401.

Type species: *Tinea trinotella* Thunberg, 1794.

Dystinea Börner, 1925: 372.

Type species: *Phalaena* (*Tinea*) *pellionella* Linnaeus, 1758.

Tineopis Zagulajev, 1960: 209 (as subgenus).

Type species: *Tinea columbariella* Wocke, 1877.

Description. Small to medium-sized moths, mostly unicolorous, labial palpi densely bristled. Scape of antenna with pecten. Forewings often with a hyaline stripe at the base.

MALE GENITALIA. Uncus lobes are fused to form a hook-like structure, articulated with the tegumen; gnathos arms elongate to broadly triangular, appressed but not fused in mid-line; valva simple, phallus more or less straight, with cornuti and/or vesica with small thorns.

FEMALE GENITALIA. Segment VIII free, trapezoidal, with shallow to deep posterior medial emargination accommodating ostium; antrum short, simple and funnel-shaped or more complex with longitudinal folds; bursa with thorn- or seta-like signa.

DISTRIBUTION. Distributed worldwide, some species have become pests and are now cosmopolitan, but originated in the Palaearctic region. About 70 species are known of which about 25 are distributed in the Palaearctic. 16 species are known from Europe.

BIONOMICS. The larvae of the genus are generally ceratophagous, capable of utilizing most forms of keratin as a food (wool, fur, feathers, leather, silk, fish-meal, hooves, and probably also horn). Where not associated with man, larvae feed in keratin sources such as animal corpses, birds' nests, bird-pellets, mammal burrows and weathered carnivore faeces (Robinson, 1979a). Many species are also capable of utilizing chitin, some have been recorded as museum pests of insect collections, one group of species is cave-dwelling, the larvae feeding on bat and swiftlet guano (Robinson, 1980).

REMARKS. In the introduction chapter of his paper on the *Tinea pellionella* complex Robinson (1979a) reviewed the very interesting history of the knowledge about the genus.

The following nine European species belong to the *Tinea pellionella* complex, the case-making clothes-moths, which includes eleven species worldwide (according to Robinson, 1979a). In this paper keys and figures for the identification of male and female specimens are given, the life history and distribution of each species is discussed with special reference to damage, pest status and factors limiting distribution. Distribution maps are provided. An extensive review of all literature including literature on control is provided. As it is nearly impossible to add valuable new information about these species, I take parts of Robinson's descriptions of the taxa into this paper.

Dissection of the genitalia is nearly always needed for certain determination of the species of this group.

According to Mutanen (pers. comm.), based on DNA barcodes, *T. columbariella* and *T. svenssoni* should be included in this species group, or, alternatively, *T. steueri* and *T. bothniella* have to be excluded from it. He is in favour for the latter alternative. Pending a final decision, I follow the opinion of Robinson here.

228 *Tinea flavescentella* Haworth, 1828

Tinea flavescentella Haworth, 1828: 564.

Tinea tristigmatella Costa, 1836: [232], [312], pl. 4: fig. 8A.

DESCRIPTION. Wingspan 8–12 mm (♂), 11–17 mm (♀); ♂: Head light fawn to cream, labial palpus cream, terminal segment with light brownish scales above and at sides. Antenna brownish cream, almost reaching apex of forewing, thorax and tegulae light fawn, speckled anteriorly with light brown scales; forewing light

fawn, fringes concolorous, scales at base, posterior to fold and at termen slightly darker and more brownish; discocellular, discal and plical spots pale cream brown, large; hindwing very light greyish brown, fringes paler (Robinson, 1979a: figs. 82–83).

Male genitalia. Saccus very short, valva with apex more or less slightly truncate at costal margin; dorsal margin of gnathos straight, tips curved inwards towards tip of uncus. Anellus spines large and protuberant but not numerous; phallus long, tip with seven or eight stout carinae, vesica with single cornutus of similar size and shape to carinae (Robinson, 1979a: figs. 26, 30, 37–39, 46a–46f).

Female genitalia. Sternite VIII with broad U-shaped emargination with a more or less pronounced anterior nick; antrum elongate, broadened posteriorly, with large lateral sclerotized patches; corpus bursae with two to four densely sclerotized thorn-shaped signa grouped towards anterior end of corpus bursae, signa not set in sclerotized circular base-plates (Robinson, 1979a: figs. 56, 61a–61e).

Variation. Coloration of ♀ as ♂ but sometimes vestiture of head darker and more reddish than in males and ground colourof forewing darker, light greyish brown. Sometimes the brown spots on forewings only visible as shadow. For variability in genitalia structures see figs. 228a–228f and Robinson, 1979a: figs. 37–39, 46a–46f and 61a–61e.

Similar species. The distinctly pale coloration and the somewhat better-defined darker spots on forewings make the species distinguishable from the other members of this group. In male genitalia phallus with one cornutus is similar to *T. steueri* and *T. bothniella*, but the shape and size of carinae and the size of cornutus is different to these taxa, in female genitalia the signa are quite different to the signa of the other species.

Distribution. Known from Spain through France to Italy, Malta (Sammut, 2000), Croatia and Macedonia, Greece and Romania (Capuşe, 1968; Rákosy et al., 2003), in Central Europe known from Austria, Germany and Denmark, north to Great Britain and Ireland, outside Europe known from Algeria and Morocco.

New records. Morocco, 2♂, High Atlas, Ouirgane, 925m, 30.–31.v.2015, leg. C. Hviid, O. Karsholt & K. Larsen, ZMUC; 1♂, same location, but 30.iv.–5.v.2016, leg. C. Hviid, K. Larsen & D. Nilsson, SDEI; 1♂, High Atlas, 7km S of Ouirgane, 1. & 5.v.2016, leg. C. Hviid, K. Larsen & D. Nilsson, ZMUC.

Bionomics. The examination of specimens with label data stating how they were reared indicates that *T. flavescentella* is a feather-feeder. The suggestion that *T. flavescentella* is nidicolous cannot be verified. Distribution records suggest that it is restricted to temperate Western Europe and the Mediterranean region. It has not, apparently, been collected outdoors in temperate Western Europe and may be incapable of a permanent outdoor existence in temperate regions (Robinson, 1979a).

229 *Tinea pellionella* Linnaeus, 1758

Phalaena (*Tinea*) *pellionella* Linnaeus, 1758: 536.

Phalaena zoolegella Scopoli, 1763: 255.

Tinea albella Costa, 1836: 19, 22.

Tinea demiurga Meyrick, 1920a: 354.

Tinea gerasimovi Zagulajev, 1978: 622, figs. 10–11.

DESCRIPTION. Wingspan 9–13 mm (♂), 11–16 mm (♀); head rich brown with slightly reddish tint, labial palpus greyish brown, outer surface of terminal segment darker; antenna greyish brown, almost reaching apex of forewing; thorax and tegulae greyish brown. Forewing greyish brown, closely speckled with darker scales to give an overall dark, dull brown coloration; basal scales posterior to fold and scales forming discocellular, discal and plical spots dark brown and closely-packed; hindwing very light grey with a slight brownish tint, scales somewhat darker towards margins, fringes concolorous (Robinson, 1979a: figs. 85–86).

MALE GENITALIA. Saccus elongate, valva of rather variable shape, costa gently concave, apex not noticeably truncated at costal margin; dorsal margin of gnathos straight, tip upturned towards uncus, anellus spines of medium size, only slightly protuberant, in a short row usually spines wide and comprising 15–20 heavily sclerotised spines. Phallus long, curved, patch of five to ten minute, thorn-like carinae at either side below apex, vesica with pair of large, evenly-tapered, blade-shaped cornuti – these visible in dorsoventral view only if phallus viewed with curve towards observer and more usually seen in lateral view in which their twisted shape is more apparent (Robinson, 1979a: figs. 14–16, 28–29, 43a–43x).

FEMALE GENITALIA. Sternite VIII with broad V-shaped emargination with small, lateral sclerotized patches at base of emargination; antrum short, broadened posteriorly into an almost spherical chamber in which transverse folds are weakly developed and weakly sclerotized, longitudinal folds short, conspicuous, transversely divided in posterior half; corpus bursae with two to five conspicuous, needle-like signa, each arising from one side of a short, broad, blade-shaped eccentric base which may be double-peaked, 'needle' arising from base of smaller peak, each 'needle and base' set in dished, circular, sclerotized base-plate which is evenly sclerotized and has regular margin (Robinson, 1979a: figs. 50, 58a–58j).

VARIATION. The coloration is somewhat variable (see figs. 229a–229d). For variability in the genitalia structures see figs. 229a–229d (males) and Robinson, 1979a: figs. 14–16, 28–29, 43a–43x; 58a–58j.

SIMILAR SPECIES. *T. pellionella* is a dark species with well-defined forewing spots; the hindwing is pale in comparison with *T. dubiella*; *T. pellionella* is generally the larger species. The male genitalia are remarkable in that the vesical ornamentation consists of two plain, blade-shaped cornuti and the carinae on the phallus are very small and thorn-like; the short and bulbous female antrum is characteristic.

DISTRIBUTION. Known from all Europe, incl. Canary Islands (examined material), outside Europe known from Caucasus (Armenia: examined material), Tajikistan (Zagulajev, 1961), Mongolia (Zagulajev, 1972b, under the name *T. gerasimovi*), Russian Far East (Bidzilya & Budashkin, 1997). Outside the Palaearctic Region known from India, New Zealand, Canada and U.S.A. (Robinson, 1979a).

BIONOMICS. The species is capable of utilizing a wide variety of foodstuffs containing keratin in various forms. With *Tineola bisselliella*, it is the agent traditionally

responsible for 'moth-damage' to woollen materials in temperate regions. Outdoors, *T. pellionella* is found feeding on feathers and wool in the nest of a wide variety of birds and has been bred from owl pellets. It will feed on the feathers or fur of animal corpses. It also been bred from fish-meal in Canada and may well be able utilize insect remains. Restricted to temperate and cool Mediterranean zones in the Palaearctic and Nearctic Regions and is present in Australia and New Zealand. In warmer regions or environments, it is replaced as a pest by *T. translucens,* T. *murariella* or *T. dubiella*. It is found in warehouses, stores and outbuildings but is now, in Britain at least, rare in houses and apparently restricted to those which are damp, poorly heated or unoccupied (Robinson, 1979a). A compilation of the habitats of the larvae is given by Petersen (1963) and Zagulajev (1981). A compilation of the published results concerning attraction of pheromones is given by El-Sayed (2012).

Remarks. Robinson (1979a) discussed the references to *T. pellionella* in the literature in detail and verified them, if possible, by examination of the specimens, otherwise he transferred the records to the other species of this group.

230 *Tinea translucens* Meyrick, 1917

Tinea translucens Meyrick, 1917: 78.

Tinea metonella Pierce & Metcalfe, 1934: 266.

Tinea leonhardi Petersen, 1957a: 146, fig. 111.

Tinea margaritacea Gozmány, 1967: 14, fig. 13.

Tinea fortificata Gozmány, 1968: 302, figs. 2, 11.

Description. Wingspan 9–14 mm (male); 11–18 mm (female); head light ochreous, labial palpus ochreous white, densely flecked with blackish brown scales on outer surface; antenna greyish brown, four-fifths length of forewing; thorax and tegulae ochreous, dusted with deep grey anteriorly; forewing ochreous, fringes concolorous, with distinct but diffuse basal fascia of dark grey scales, particularly dark at costa, discal and plical spots small, elongate, dark grey, discocellular spot small, charcoal-grey; hindwing ochreous white with a slight grey tint. (Robinson, 1979a: figs. 87–89).

Male genitalia. Saccus elongate, valva with costa often markedly concave, apex rounded or slightly truncated at costal margin, dorsal margin of gnathos concave, tip upturned towards tip of uncus; anellus spines of rather variable form, commonly arranged in a broad, elongate band of twenty or more small spines. Phallus elongate, tip without carinae, vesica with pair of distinctly blunt-tipped blade-shaped cornuti and at least four small, elongate terminal cornuti (Robinson, 1979a: figs. 18–20, 31, 44a–44l).

Female genitalia. Sternite VIII with deep, narrow V-shaped emargination and distinct sclerotized lateral patches at base of emargination; posterior of antrum with rhomboidal outline, transverse folds of wall convergent at ostium, longitudinal folds transversely divided in posterior half, anterior limit of antrum with more or less clearly-defined annular sclerotization appearing as transverse stripes at posterior end of ductus bursae. Corpus bursae

with two conspicuous needle-shaped signa, each arising from one side of a short, broad, blade-shaped base set in large, circular sclerotized base-plate, sclerotization of signum base-plates uneven, giving each base-plate irregular edge and mottled appearance (Robinson, 1979a: figs. 51, 59a–j).

VARIATION. Variability in male and female genitalia (see figs. 19–20, 44a–44l (males) and figs. 59a–59j (females) in Robinson, 1979).

SIMILAR SPECIES. The species closely resembles *T. pellionella* in its external characteristics and cannot be reliably separated from it except by examination of the genitalia. The two large cornuti of the male are blunter than in *T. pellionella* which also lacks the apical group of small cornuti always present in *T. translucens*. The dorsal margin of gnathos is concave, not straight as in *T. pellionella* and the phallus is straight whereas in *T. pellionella* it is distinctly banana-shaped. Females of *T. translucens* have a much larger antrum than females of *T. pellionella* and the eighth sternite is more deeply emarginate. The signa, apparently always a pair in *T. translucens*, are frequently more numerous in *T. pellionella*: the signum base-plates of *T. pellionella* do not have the characteristic irregular edge and mottled appearance of those of *T. translucens* and the bases of the needle-shaped signa are usually shorter and broader in *T. pellionella* than in *T. translucens*.

DISTRIBUTION. Cosmopolitan, apparently common in the humid tropics. According to Robinson (1979a), the species ranges northward as far as Virginia (U.S.A.), Liverpool (U.K.) and Tokyo (Japan) and southward as far as Quillota (Chile) and Cape Town (South Africa) but at its latitudinal extrems, in the north at least, it is entirely restricted to a synanthropic indoor existence in artificial warmth and shelter. Native in South Asia, first record in Europe 1856 in the U.K. (Lopez-Vaamonde *et al.*, 2010).

BIONOMICS. The species appears to be able to utilize much the same range of foodstuffs as *T. pellionella* which it replaces in warmer climates, filling the same synantropic niche. Specimens have been bred from woollen clothing, 'oriental' carpets, blankets, a leather shield and from bongo drums made from zebra-skin. Kim & Bae (2007) found larvae infesting the stuffed mammals stored in a museum.

REMARKS. *T. translucens* is an alien species to Europe (Lopez-Vaamonde *et al.,* 2010).

231 *Tinea murariella* Staudinger, 1859

Tinea murariella Staudinger, 1859: 235.

Tineola bipunctella Ragonot, 1874: CLXXI.

DESCRIPTION. Wingspan 8–12 mm (male), 11–17 mm (female). Head yellow-ochreous, labial palpus ochreous, whitish on inner surface, outer surface flecked with greyish brown; antenna dark greyish brown, almost reaching apex of forewing. Thorax and tegulae yellow-ochreous, greyish brown anteriorly; forewing light yellow to greyish ochreous, fringes concolorous, base of costa greyish brown; discocellular spot small, brown to dark grey-brown, discal and plical spots ill-defined. Hindwing pale greyish, fringes paler, ochreous-cream (Robinson, 1979a: figs. 90–91).

MALE GENITALIA. Saccus elongate, valva with apex rounded or slightly truncated at costa; dorsal margin of gnathos straight in middle, concave at base and tip, anellus spines small and flat, forming an elongate row three or four spines wide, about 20 spines in each row heavily sclerotized, un-sclerotized plaques extend distally along anellus almost to level of tip of gnathos. Phallus long, tip without carinae; vesica ornamented only with two blade-shaped cornuti, tips of cornuti acutely pointed, diagonal edge usually coarsely serrate with one or two lateral spine-like projections (Robinson, 1979a: figs. 23, 32–33, 45a–45f).

FEMALE GENITALIA. Sternite VIII with deep, narrow V-shaped emargination, posterior part of antrum swollen equatorially at level of transverse folds which do not converge towards ostium, longitudinal folds transversely divided in anterior half. Anterior limit of antrum with clearly defined annular sclerotization appearing as transverse stripes at end of antrum. Corpus bursae with two or three conspicuous needle-shaped signa, each arising from one side of a short, broad, blade-shaped base set in a large, circular, well-sclerotized base-plate, sclerotization of signum base-plate even, giving each base-plate regular edge and evenly colored appearance (Robinson, 1979a: figs. 52, 60a–60e).

VARIATION. Discal and plical dots obsolete in pale specimens but well-defined in dark specimens. For variability in genitalia structures see figs. 231a–231b and figs. 45a–45f (males) and figs. 60a–60e (females) in Robinson (1979a).

SIMILAR SPECIES. The species closely resembles *T. translucens* both in external appearance and in genital structure, particularly of the female. The discal and plical spots are usually not as well developed as in *T. translucens* and the colourof the forewings is generally lighter. There are no carinae on the phallus of *T. murariella* and in the vesica are only two large blade-shaped cornuti: the serrated tips of these cornuti are characteristic but not always present. Females of *T. murariella* may have two or three signa (*T. translucens* has only two) and these are set in base-plates which are evenly and densely sclerotized: in *T. translucens* the base-plates have mottled sclerotization, which give them an irregular edge. Transverse division of the longitudinal antrum folds in the posterior (swollen) part of the antrum do not converge on the ostium as in *T. translucens*. In *T. murariella* there is a small longitudinal fold in the inner wall of the antrum while it is absent in *T. translucens*. The forewing colourof wild-caught specimens is generally paler and may be quite bright pale yellow. The density of forewing coloration is more variable in *T. murariella* than in other species of the *T. pellionella*-group.

DISTRIBUTION. Primarily a Mediterranean species. In Europe known from Madeira, the Iberian Peninsula through France, Italy, Germany, and Switzerland to Greece and Romania; outside Europe recorded from North Africa and Sudan, introduced into South America (Venezuela, Argentina, Brazil).

BIONOMICS. Larvae on fur, woollen clothing, hides, hooves and insect specimens, raptor pellets. The species appears able to utilize much the same range of foodstuffs as the other species of the *T. pellionella*-complex of the genus. Larvae

and pupae were described by Huertas Dionisio (2005).

232 *Tinea lanella* Pierce & Metcalfe, 1934

Tinea lanella Pierce & Metcalfe, 1934: 267.

DESCRIPTION. Wingspan 11–15 mm (male), 14–17 mm (female). Head ochreous-cream, labial palpus pale ochreous, whitish on inner surface, outer surface flecked with brown; antennae light brownish ochreous, three-quarters or more length of forewing. Thorax and tegulae light ochreous, suffused anteriorly with blackish brown; forewing light ochreous, fringes concolorous, base of costa suffused blackish brown, discocellular spot light greyish brown, small, discal and plical spots yellowish brown, small, ill-defined; hindwing greyish with slight ochreous tint at margin, fringes paler (Robinson, 1979a: figs. 92–93).

MALE GENITALIA. Saccus long, valva with costa markedly concave to about two-thirds, apex truncated, dorsal margin of gnathos straight in middle, markedly concave at base and tip; anellus spines very small, arranged in a patch of only 12–14 widely separated spines. Phallus long, two large serrate comb-shaped carinae at or just below tip; vesica ornamented with two elongate, evenly tapered cornuti (Robinson, 1979a: figs. 25, 35–36, 49a–49c).

FEMALE GENITALIA. Sternite VIII with shallow, square emargination with anterior nick, ventral lip of ostium heavily sclerotized on internal surface; antrum small, slightly bulbous, transverse folds of posterior internal wall absent, longitudinal folds ill-defined, not transversely divided; wall of ductus bursae with sclerotization just anterior to end of antrum, ductus bursae somewhat enlarged, with numerous minute thornlike sclerotizations. Corpus bursae with one or two very small, short, needle-like signa set off-centre in a small, pimple-like sclerotized base (Robinson, 1979a: figs. 53, 64a–64c).

VARIATION. For variability in the genitalia structures see figs. 232a–232c and figs. 49a–49c (males) and 64a–64c (females) in Robinson (1979a).

SIMILAR SPECIES. The species differs, in the male, from other members of the *T. pellionella*-group in possessing a pair of large, comb-shaped carinae just below the tip of the phallus. The two large cornuti are somewhat similar to those of *T. messalina* or *T. murariella* but these two species have no carinae. Females differ from other members of the *T. pellionella*-group in having the posterior part of the ductus bursae finely scobinate. In *T. bothniella* the membrane of the ductus bursae is coarsely scobinate and in all other members of the *T. pellionella*-group it is smooth. The signa of *T. lanella* are smaller than those of any other species with two signa: no other *T. pellionella*-group species is known which may have only one signum. The shape and sclerotization of the eighth sternite and antrum of *T. lanella* and the ductus bursae with numerous thorn-like sclerotizations are distinctive.

DISTRIBUTION. Hitherto known only from Great Britain (type-series; Langmaid & Young, 2007; Uffen, 2007), Spain (Sierra Nevada; Huesca) and Romania (Capuşe, 1968).

Bionomics. The type-series was found in a wool warehouse in Liverpool. Adults were collected in Spain in May and June (studied specimens), in Great Britain in June and July (Robinson, 1979a).

Remarks. The recently known occurrence obviously does not reflects the real distribution of this species, the large gaps in the hitherto known distribution are zoogeographically not explainable.

233 *Tinea messalina* Robinson, 1979

Tinea messalina Robinson, 1979a: 87, figs. 24, 34, 48, 54, 63a–63c, 94–95.

Description. Wingspan 12 mm (male), 15–16 mm (female). Head light ochreous, labial palpus whitish, densely flecked with dark brown on outer surface; antenna greyish brown, extending to tip of forewing. Thorax and tegulae light ochreous flecked with brown, dark brown anteriorly. Forewing light ochreous speckled with brown scales which are especially dense in basal fascia, fringes light ochreous, spots, especially the discocellular spot, well defined in fresh specimens, greyish brown; hindwing whitish with a slight grey tint, base of fringes tinted ochreous. Coloration of the females the same as males (Robinson, 1979a: figs. 94–95).

Male genitalia. Saccus long, valva large, slender, with rounded apex, dorsal margin of gnathos with slight medial convexity, angled dorsad at one-third and just below apex; anellus spines large, arranged in elongate band three to four spines wide with proximal ten of about twenty well-defined spines heavily sclerotized. Phallus elongate, without carinae, vesica with two elongate, blade-shaped cornuti which are coarsely serrate below apex and which have minute thorn-like projections on lateral surfaces. At three-quarters length of phallus, vesica armed with some small, slender cornuti (Robinson, 1979a: figs. 24, 34, 48).

Female genitalia. Sternite VIII with shallow U- or V-shaped emargination with wall of ostium heavily sclerotized at base of emargination; posterior part of antrum swollen only slightly, transverse folds ill-defined, longitudinal folds narrow, ill-defined, not transversely divided, anterior part of antrum broad, parallelsided. Wall of ductus bursae with well-defined annular sclerotizations slightly anterior to end of antrum, appearing as dark stripes. Corpus bursae with two or three conspicuous needle-shaped signa, each arising from one side of a short, blade-shaped base set in a large, circular, heavily sclerotized base-plate (Robinson, 1979a: figs. 54, 63a–63c).

Variation. Specimens from Tenerife with darker, greyer forewings, forewing markings and greyer hindwing. For variability in the genitalia structures see figs. 232a–232b (males) and figs. 64a–64c (females) in Robinson (1979a).

Similar species. This species resembles *T. murariella* in its external appearance and cannot be reliably separate from it except by examination of the genitalia. In the male, the two large cornuti are similar to but larger than those of *T. murariella* which lacks the small cornuti present in *T. messalina*. In the female, the antrum is larger and broader than in *T. murariella*. The uneven edges of the signum base-plates in one specimen (from Yemen) are reminiscent of those of *T. translucens* but are much more pronounced.

DISTRIBUTION. Hitherto known only from Portugal (studied material; Corley, 2015), Spain (Gaedike, 2013), Canary Island Tenerife (Robinson, 1979a), Malta (Gaedike & Zerafa, 2010), Italy (Holotype: Venice) and Greece (mainland and Islands Crete, Karpathos, Sifnos), outside Europe known from Algeria and Yemen.

BIONOMICS. Larval pabulum unknown. Adults have been collected in Spain between May and July, in Greece between April and September.

234 *Tinea dubiella* Stainton, 1859

Tinea dubiella Stainton, 1859a: 183.

Tinea turicensis Müller-Rutz, 1920: 348, pl. II: fig. 16.

Tinea bispinella Zagulajev, 1960: 169, figs. 132–134.

Tinea tenerifi Zagulajev, 1966: 169, figs. 22–23.

DESCRIPTION. Wingspan 9–12 mm (♂), 11–15 mm (♀). Head greyish ochreous, labial palpus dark grey, light grey on inner surface, tip paler; antenna dark brownish grey, reaching apex of forewing. Thorax and tegulae dull brownish grey, darker anteriorly; forewing dull brownish grey with a few scattered yellowish colored scales, fringes concolorous, charcoal-grey scales at base of costa and in fold, discal and plical spots charcoal-grey, elongate, discocellular spot darker, round. Hindwing grey, fringes brownish colored (Robinson, 1979a: figs. 96–97).

MALE GENITALIA. Valva with costa slightly convex, apex rounded but more or less truncate at costal margin; dorsal margin of gnathos evenly concave or almost straight in the middle, tip upturned towards uncus; anellus spines flattened and overlapping, arranged in a tapered band up to four spines wide and containing about 20 spines, proximal spines large. Phallus without carinae; vesica ornamented only with a pair of small, short, divergent, peg-shaped cornuti just below apex of phallus (Robinson, 1979a: figs. 17, 41–42, 47a–47r).

FEMALE GENITALIA. Sternite VIII with broad, shallow V-shaped emargination; antrum markedly swollen posteriorly, transverse folds present and anterior to these a pair of conspicuous saucer-shaped lateral protuberances; anterior part of antrum short, slightly tapered anteriorly, longitudinal folds short, conspicuous, not transversely divided; annular sclerotization at posterior end of ductus bursae ill-defined or absent. Corpus bursae with three or (usually) four small, thin, needle-like signa, each arising from minute unsclerotized tubercle (Robinson, 1979a: figs. 55, 62a–62e).

VARIATION. For variability in the genitalia structures see figs. 233a–233b (males) and figs. 47a–47r (males) and figs. 62a–62e (females) in Robinson (1979a).

SIMILAR SPECIES. *T. dubiella* is generally darker colored than any other species of the *T. pellionella*-group. Fresh and undamaged specimens in particular have darker and more greyish forewing than other members of the *T. pellionella*-group and the hindwing is distinctly darker, being grey rather than ochreous-whitish colored or very pale grey as in the other species. The scattered yellowish colored scales on forewing are characteristic. In the male, the greatly reduced pair of peg-like cornuti and absence of carinae

in phallus are characteristic. The female genitalia are remarkable for the curious development of the paired saucer-shaped protuberances of the postero-ventral wall of the antrum.

Distribution. Canary Islands, Iberian Peninsula, France with Corsica (Varenne *et al.*, 2014), Italy, Croatia, Greece, Bulgaria and Romania (Capuşe, 1968), eastwards to Ukraine (Zagulajev, 1960), from Central Europe (Germany, Poland, Czech Republic, Switzerland, Hungary) northwards to Great Britain, Denmark, Sweden and Central European Russia (Klepikov, 2006). Outside Europe recorded from Algeria, the Middle East, the Caucasus to Middle Asia and Russian Far East (Ponomarenko, 2016), but also introduced into the Oriental, Afrotropical, Australian, and Nearctic Regions.

New record. Greece, 1♂, Epirus, Marquanti, 500m, 16.vi.2017, leg. J. Viehmann, coll. Schmitz.

Bionomics. The species appears able to utilize much the same range of foodstuffs as the other species of the *T. pellionella*-complex of the genus. Larvae have been found in damp carpet lining a disused dog-kennel, on pellets of several birds, in swallows' nests etc. (Robinson, 1979a).

235 *Tinea steueri* Petersen, 1966

Tinea steueri Petersen, 1966a: 35, figs. 2–3.

Description. Wingspan 12 mm (♂), 17 mm (♀). Head ochreous with slight reddish tint, labial palpus greyish ochreous, blackish brown on outer surface; antenna dull grey-brown, almost reaching apex of forewing. Thorax and tegulae dull grey-brown, darker anteriorly. Forewing light greyish brown, flecked with dark grey-brown scales, base of costa and plical fold darker than remainder of wing, fringes light greyish brown; discal and plical spots ill-defined, discocellular spot small, greyish brown, basal quarter of costa swollen, with small, elongate, hyaline spot between Sc and R1. Hyaline spot lacks scales on underside of wing and is covered above with thin, colorless scales. Hindwing very light grey, fringes paler (Robinson, 1979a: fig. 100).

Male genitalia. Saccus short, valva triangular with apex evenly rounded, sacculus heavily sclerotized, dorsal margin of gnathos slightly concave, tip not upturned, tip of uncus extended posteriorly and bent towards tip of gnathos. Anellus spines very large, arranged in elongate band of 11 spines edged with sclerotized plaques and with a few small thorn-like spines at distal end of band. Phallus very broad, with minute cornutus (Robinson, 1979a: figs. 69, 71).

Female genitalia. Sternite VIII with deep, wedge-shaped emargination almost completely dividing sternite; antrum very broad, flattened and curved parallel with surface of eighth sternite, transverse folds ill-defined, anterior part of antrum represented only by short neck without longitudinal folds. Corpus bursae with four or five short, needle-like signa, each set in pyramidal base, two posterior signa set in very small sclerotized base-plates (Robinson, 1979a: figs. 66, 72).

Variation. The differing appearance of phallus depends on preparation (see figs. 235a–235b).

Similar species. *T. steueri* is a dark species with superficial resemblance to

T. pellionella but it differs externally from all other members of the *T. pellionella*-group in having a wide and diamond-shaped hyaline spot at the base of the forewing costa. This zone is sometimes thinly scaled in the other species of the group and, additionally, may be rubbed but in *T. steueri* the modification is conspicuous and the costa is convex around the spot. The greatly expanded antrum of the *T. steueri* female is characteristic. In the male, the anellus spines are very similar to those of *T. bothniella* and much larger than in the other members of the *T. pellionella*-group, the cornutus is minute, much smaller than the cornutus of *T. bothniella*.

DISTRIBUTION. Central Europe, northwards to Scandinavia (Denmark (Aarvik *et al.,* 2017), Sweden, Finland), Lithuania (Aarvik *et al.*, 2017) and Latvia, eastwards through Greece to Romania and East European Russia, outside Europe from Turkey.

New record. Greece, 1♀, Askion Mts, Vlasti, 400m, 13.vi.2017, leg. J. Viehmann, coll. Schmitz.

BIONOMICS. Larvae feed in pellets of *Tyto alba* (studied material from Germany), and have been many times found in nests of the owls *Strix uralensis* and *Strix aluco* in Finland (Nunen *et al.*, 2000). Bengtsson (2017) informs about larvae, living in Sweden on pellets of *Strix aluco*: „The common circumstance was larvae feeding on pellets from tawny owl *Strix aluco* breeding in abandoned barns, sheltering the pellets from rain and snow and thus preventing them to be fragmented." For description of larvae see Nunen *et al.* (2000).

REMARKS. The assumption that larvae live in the nests of Hymenoptera (Petersen, 1966a) could not be confirmed. Robinson (1979b: figs. 1–2) corrected the description of the male genitalia from his earlier published paper (Robinson, 1979a) concerning the presence of a cornutus.

236 *Tinea bothniella* Svensson, 1953

Tinea bothniella Svensson, 1953: 225, figs. 1A, 1C, 1E.

Tinea unidentella Zagulajev, 1960: 168, figs. 130–131.

Tinea sibiriella Zagulajev, 1960: 171, figs. 3G, 135.

DESCRIPTION. Head reddish ochreous, labial palpus light greyish ochreous, whitish on inner surface; antenna three-quarters length of forewing, light greyish ochreous, basal segments darker. Thorax and tegulae light greyish ochreous, not noticeable darker anteriorly. Forewing light greyish ochreous, fringes slightly paler, discal, plical and discocellular spots absent. Hindwing pale brownish cream, darker at margins, fringes slightly paler (Robinson, 1979a: fig. 101).

MALE GENITALIA. Valva elongate, apex rounded, not truncate, costa concave, sacculus heavily sclerotized, dorsal margin of gnathos straight or slightly convex, tip not upturned towards uncus, tip of uncus extended posteriorly and bent towards tip of gnathos; anellus spines very large, arranged in elongate band of 11 or 12 spines edged with and continued at distal end as sclerotized plaques. Phallus broad, without carinae, vesica with single large, elongate cornutus (Robinson, 1979a: figs. 67, 70).

FEMALE GENITALIA. Sternite VIII with deep U-shaped emargination to beyond

one-half; posterior part of antrum swollen, parallelsided, flattened and curved parallel with surface of eighth sternite, transverse folds absent; anterior part of antrum extremely short, with narrow longitudinal folds which have ill-defined transverse division at one-half separating unsclerotized anterior part of fold from heavily sclerotized posterior part. Middle of antrum with heavy annular sclerotization appearing as ill-defined transverse stripes, anterior of this, inner wall of antrum finely scobinate. Corpus bursae with some elongate, needle-shaped signa, each arising from unsclerotized pimple-like base (Robinson, 1979a: figs. 73–75).

Variation. No variability has been observed.

Similar species. *T. bothniella* is a large species lacking the characteristic three spots in the forewing of the other species of the *T. pellionella*-group. *T. bothniella* has a uniformly greyish ochreous forewing without a hyaline spot. The male genitalia are similar of those of *T. steueri*, the cornutus is larger; the valva of *T. bothniella* is larger and more rectangular than in *T. steueri* and the base of the gnathos is angled. In the female, the posterior part of antrum is narrower, and the eighth sternite less deeply emarginated than in *T. steueri*.

Distribution. Scandinavia (Sweden, Norway, Finland), Estonia, European part of Russia, outside Europe known from Kazakhstan (Zagulajev, 1960), Siberia and Mongolia (Zagulajev, 1960; Petersen, 1973b) and Russian Far East (Ponomarenko, 2016).

Bionomics. Larvae were found in pellets of owls (Zagulajev, 1960 under the name *T. sibirella*). A compilation of the habitats of the larvae is given by Zagulajev (1981). Adults have been collected between June and August. The information about adults, which were collected in April in Finland from a population living in the museum of Turku University (Jalava, pers. comm., cited in Robinson, 1979a) is misleading: "This occurrence is known to be because bird nests were brought from elsewhere to the museum. It does not live as much south as Turku. It also does not live in inhabited and continuously warm houses." "The species lives characteristically in abandoned houses in northern Finland. It can be easely reared by placing suitable "food" for them to the house and then bringing this food later indoors." (Mutanen, pers. comm.).

Remarks. According to Robinson (1979a) the distribution of *T. bothniella* suggests that it is the hardiest species of the *T. pellionella*-group: its localities all lie to the north of the 0°C January isotherm and in its Siberian habitats the January mean temperature in in the range –6 to –18°C.

237 *Tinea basifasciella* Ragonot, 1895

Tinea basifasciella Ragonot, 1895a: XXXIX.

Tinea punctigera Walsingham, 1907: 191.

Tinea nitentella Chrétien, 1908: 260.

Tinea punctigera palaestinella Amsel, 1955: 63; pl. VI, fig. 8.

Tinea exquisita Gozmány, 1960: 108, fig. 3B.

Tinea rostrata Petersen, 1966b: 27, fig. 4, **syn.n.**

Description. Wingspan 10–18 mm; head brush yellowish brown, labial palpus on inside light cream-colored, on outside

somewhat darker, second segment bristled; antenna nearly as long as forewing, scape with pecten; thorax and tegulae in the basal half dark brown, apical half yellowish brown; forewing yellowish brown with a dark brown pattern consisting of an oblique stripe at base from costa to dorsum, a stripe from costa to cell at 1/2, a stripe from costa to middle of wing at 3/4, and the basal fringe, area; fringe with a thin dark brown scale-line; the yellowish brown area overlaid with some darker scales, hindwings white.

MALE GENITALIA. Uncus hook-like, with pointed tip, gnathos arms broad, spatulate; valva a little longer than uncus-tegumen complex, costal edge in the basal third somewhat convex, on inside, near costa with a fold; phallus as long as saccus, basal third swollen, narrower to apex, last third slightly curved, vesica with numerous minute thorns.

FEMALE GENITALIA. Sternite VIII at ostium lip with U-shaped emargination, ostium V-shaped, ductus bursae with a longer strongly sclerotized part, corpus bursae with some minute strongly sclerotized thorns.

VARIATION. Sometimes the stripe at 1/2 divided into two dark brown patches (see fig. 237b), sometimes the stripe at 3/4 reduced to one dot and the dark brown coloration of forewing is reduced (see fig. 237c). In male genitalia the position and size of the fold on inside the valva variable (see figs. 237a–237f), the curved phallus is seen in lateral view (see figs. 237g–237h).

SIMILAR SPECIES. Superficially the dark brown pattern on the yellowish brown ground colourmake distinguishes the species from the other members of the genus.

DISTRIBUTION. Mediterranean region from Iberian Peninsula through Italia to Greece and Bulgaria; outside Europe from North Africa (Morocco to Libya) through Turkey to Iran.

BIONOMICS. Larvae have been found in nests of hymenopterans (*Paravespula germanica*)(Viette, 1957), and have been reared from cave with bat guano in Morocco (examined material). Chrétien (1908) described eggs, larvae and pupae, larvae were recorded from dry hay, feathers, chicken droppings, dead Lepidoptera etc. (under the name *T. nitentella*). This was the source of the information about the life history by Petersen (1957a). Adults have been collected between May and October.

REMARKS. The comparison of the illustration and description of *T. rostrata* shows that there are no specific differences between *T. basifasciella* and *Tinea rostrata* Petersen, 1966 which is here synonymized with *Tinea basifasciella* Ragonot, 1894.

238 *Tinea columbariella* Wocke, 1877

Tinea columbariella Wocke, 1877: 43.
Tinea latro Meyrick, 1931b: 95.

DESCRIPTION. Wingspan 10–15 mm; head brush brown, labial palpus a little lighter colored, second segment bristled; scape of antenna without pecten; thorax and tegulae brown, shiny, forewing with same coloration, at the end of cell a darker brown dot, visible often only as shadow, near base, below costa an elongate hyaline spot, similar to *steueri*; hindwing shiny light grey.

MALE GENITALIA. Uncus and gnathos arms characteristic for the genus, tip of

uncus hook-shaped; valva broadest at base, ventral edge straight, costal edge narrower to rounded apex, subapically on inside a lbroad tongue-shaped prolongation, protruding beyond ventral edge; phallus longer than entire genital apparatus, slightly curved, anellus spines numerous, in two elongate bands, vesica as two serrate rows.

Female genitalia. Segment VIII lyre-shaped, lateral edges strongly sclerotized. Ostium and first part of ductus bursae more strongly sclerotized, in corpus bursae some needle-shaped signa.

Variation. No variability has been observed, the differing appearance of phallus depends on preparation (see figs. 239a–239c).

Similar species. Superficially not clearly distinguishable from the species of *T. pellionella*-group and from *T. svenssoni*. Reared specimens can be reliably separated from reared *T. svenssoni*. They are more matt and greyer (less brown) and the fringe are more grey. The tongue-shaped prolongation on inside of valva, the vesica as serrate rows and the lyre-shaped segment VIII in females make *T. columbariella* clearly distinguishable from the *T. pellionella*-group. The position and size of tongue-shaped prolongation inside the valva, the shape of anellus and structure of phallus tip and the shape of segment VIII and ductus bursae are distinguishing characteristics from *T. svenssoni*.

Distribution. Nearly all Europe; outside Europe from Turkey through Caucasus region to Central Asia and Russian Far East. The distribution in Scandinavia is illustrated in Bengtsson (2008). The species occurs in North America and is recorded in Canada (Landry & Pohl, 2018). It is introduced and established in Australia (Robinson & Nielsen, 1993).

Bionomics. Larva in nests of numerous birds, in pellets (examined material, as well as Büttiger, 1959; Jaworski *et al.* 2012; Robinson, 1982; 2009; Viette, 1957). A compilation of the habitats of the larvae is given by Petersen (1963) and Zagulajev (1981). The larva is described by Hinton (1956). According to Mutanen (pers. comm.) the species was never found in nests of owls, but was reared only from pigeon nests.

239 *Tinea svenssoni* Opheim, 1965

Tinea svenssoni Opheim, 1965: 54, figs. 1–4.

Description. Wingspan 10–19 mm; head brush yellowish brown, labial palpus on inside whitish, on outside brown, second segment bristled; antenna nearly as long as forewing, scape with pecten; thorax and tegulae brown, tips of tegulae yellowish; forewing unicolorous brown, at end of cell with dark brown dot, near base, below costa an elongate hyaline spot, similar to *T. columbariella*; hindwing nearly white.

Male genitalia. Similar to the preceding taxon, valva broadest at base, ventral edge and costal edge narrower to rounded apex, the subapical tongue-shaped prolongation is situated more basally than in *T. columbariella*, and does not protrude beyond ventral edge; phallus nearly 1.5 times longer than entire genital apparatus, straight, anellus spines numerous, in two rows, vesica with numerous thin strongly sclerotized pointed thorns,

arranged into two parts, laterally the truncated tip with serrate edge.

FEMALE GENITALIA. Segment VIII very similar to *T. columbariella*, first part of ductus bursae with more strongly sclerotized lateral edges, the second part swollen, corpus bursae with some needle-shaped signa.

VARIATION. No variability has been observed, the differing appearance of phallus depends on preparation (see figs. 239a–239c).

SIMILAR SPECIES. For differences see under *T. columbariella*.

DISTRIBUTION. Scandinavia and Baltic countries (Jürivete *et al.,* 2000; Bengtsson, 2008, Aarvik *et al.*, 2017); East European Russia (Anikin *et al.*, 2000). Nearctic region Canada (Landry *et al.*, 2013).

BIONOMICS. Larva in bird nests (Opheim 1965, 1973). Based on Finnish observations, typically in cavity nests of species, such as tits and owls (Landry *et al.*, 2013), in nest of *Strix uralensis* (Zagulajev, 1981; Nunen *et al.*, 2000).

240 *Tinea pallescentella* Stainton, 1851

Tinea pallescentella Stainton, 1851: 2.

Tinea nigrifoldella Gregson, 1856: 5295.

Tinea galeatella Mabille, 1887: 34.

Tinea horosema Meyrick, 1931a: 413.

Tinea stimulatrix Meyrick, 1931a: 413.

Tinea pallescentella, f. semilineatella Knaben, 1944: 10, fig. 1.

Tinea coacticella Zagulajev, 1954b: 452, figs. 1–4.

DESCRIPTION. Wingspan 15–24 mm; head brush cream-colored, in the middle and above palpi more brown colored; labial palpus on inside whitish, on outside cream-colored, second segment bristled; antenna nearly as long as forewing; thorax cream-colored, tegulae somewhat darker; forewing greyish cream-colored with a grey brown pattern. Grey brown are: a narrow band from base to the end of cell, one smaller dot before 1/2 and one larger dot at 2/3 above this band, the base of fringe and a thin scale-line on fringe. The rest of forewing mixed with lighter and darker scales; hindwing shiny whitish.

MALE GENITALIA. Uncus and gnathos arms characteristic for the genus, tip of uncus not hook-shaped; valva large, parallelsided, apically truncated, with rounded edges, apical half on inside covered with minute thorns; phallus two times longer than valva, straight, cornuti arranged in a bundle.

FEMALE GENITALIA. Segment VIII with slit-shaped incision, the area around ostium covered with minute thorns, ductus bursae with a ring-shaped sclerotization, below it ductus swollen.

VARIATION. Sometimes the grey brown coloration covers the forewing from the middle to costa, only the two dots are visible; clear lighter is the part from base to beginning of fringe below cell (see fig. 240b). The appearance of cornuti depends on preparation (see figs. 240a–240c).

SIMILAR SPECIES. The pattern on forewing, in male genitalia the shape of valva and the cornuti arranged in bundle and in female genitalia the slit-shaped incision with the minute thorns are characteristic and distinguish T. *pallescentella* from the other members of the genus.

DISTRIBUTION. Central Europe, westwards to France, northwards to British

Isles, Faroe Islands and Scandinavia southwards to Italy and Malta (Sammut, 2000), eastwards to Romania and European part of Russia. Native in Neotropics (South America), first record in Europe 1840 in Ireland (Lopez-Vaamonde *et al.*, 2010). It is introduced and established in Australia and New Zealand (Robinson, 2009) and is also known from the U.S.A.

Bionomics. Larva has been found in stables, outhouses, mills, granaries, warehouses, larvae have been taken in woollen materials and skins left out-of-doors. Other information was cited by Hinton (1956): "It has been found on a dead cat (Eales, 1872) and on a dead pheasant (Prevett, 1954), and it has been bred from a nest of *Vespa* [= *Vespula*] *germanica* (Barrett, 1894)." The larva is not a case-bearer; it makes a case only to undergo moulting and leaves the case again once the integument has hardened (Pelham-Clinton, 1985). Stamm (1940) noted that the larva seem to like fungal mycelia, and the suspicion arises from Hinton's observations that the larva requires damp conditions (Robinson & Nielsen, 1993). More detailed information on life history is given by Zagulajev (1960) (under the name *T. coarcticella*). His observations show that first-instar larvae grazed fungal mycelia on the surface of the wool fibres, only in later instars the larvae were able to utilize a drier substrate without fungal component. Specimens in the British Museum (Natural History) London were reared from human remains in a vault (Robinson & Nielsen, 1993). A compilation of the habitats of the larvae is given by Zagulajev (1981). Larva was described in detail by Hinton (1956).

Remarks. *Tinea pallescentella* is an alien species to Europe (Lopez-Vaamonde *et al.*, 2010).

241 *Tinea omichlopis* Meyrick, 1928

Tinea omichlopis Meyrick, 1928b: 427.

Monopis (*Monopina*) *nonimella* Zagulajev, 1955: 287, figs. 3–4.

Description. Wingspan 10–16 mm; head brush golden-yellow, labial palpus on inside cream-colored, on outside brown, apical segment totally cream-colored, second segment bristled; antenna nearly as long as forewing; thorax and tegulae dark brown; forewing dark brown too, without any pattern, only on costa at 2/3 a very small light brown dash, fringe with dark brown scale-line; hindwing light grey.

Male genitalia. Uncus nearly straight, basal and lateral edges of tegumen stronger sclerotized; valva a little longer than uncus-tegumen-complex, costal edge nearly straight, at 2/3 slightly vaulted, ventral edge convex, curved to rounded apex, on inside below costa from base to vaulted area a more strongly sclerotized fold; phallus longer than valva, curved, the inside edge strongly sclerotized from base to pointed tip, anellus spines forming an bundle, vesica with some small strongly sclerotized thorns.

Female genitalia. Segment VIII with deep slit-like emargination, the edges longitudinal folded, with some more strongly sclerotized wrinkles; corpus bursae with numerous smaller strongly sclerotized thorns.

Variation. Some specimens completely deep dark brown colored (see fig. 241b).

Similar species. The lack of the hyaline spot on forewing, the characteristics for the genus *Monopis*, makes *T. omichlopis* distinguishable from the *Monopis* species *imella* and *nigricantella*, which are colored

brown to dark brown too; this coloration without any pattern is unique in the genus *Tinea*.

DISTRIBUTION. Czech Republic, Slovakia, Hungary, France (Cama & Nel, 2008), Italy, the Balkan Peninsula (Croatia, Montenegro, Greece, Bulgaria), Romania, Ukraine and European part of Russia; outside Europe recorded from the Middle East (Jordania, Iran), the Caucasus (Georgia) to Central Asia (Kazakhstan), Mongolia (Petersen, 1965b; Zagulajev, 1972c; 1975a), China and Russian Far East.

New records. Greece, 2♂, Makedonia: Kevele, Pangeo, 700m, 31.vii.1989, leg. K. Larsen, coll. Larsen; 1♂, Skepari/Meteora, Antihassia Mts, 450m, 18.v.2010, leg. et coll. Schmitz; 1♀, Kipi, Tinifi Mts, 600m, 21.v.2010, leg. et coll. Schmitz; 1♂, Askion Mts, 4km N Siatista, 21.vi.2012, leg. J. Viehmann, coll. Schmitz; 1♂, Askion Mts, Skiti, 600m, 12.iv.2016, leg. J. Viehmann, coll. Schmitz; 1♂, Epirus, Margariti, 600m, 16.v.2013, leg. J. Viehmann, coll. Schmitz.

BIONOMICS. A compilation of the habitats of the larvae is given by Zagulajev (1981)(under the name *Monopis nonimella*). Adults have been collected between May and August.

A compilation of the published results concerning attraction of pheromones is given by El-Sayed (2012) (under the name *Tinea nonimella*).

242 *Tinea semifulvella* Haworth, 1828

Tinea semifulvella Haworth, 1828: 562.

DESCRIPTION. Wingspan 15–23 mm; head brush dark clay-brown; labial palpus cream-colored, second segment bristled; antenna 0.75 times of the length of forewing; thorax and tegulae shiny whitish, with a tinge of pink; forewing in the basal 2/3 shiny whitish with pink, the apical third with fringe golden brown; the first two thirds of costa grey-brown, on dorsum at beginning of fringe a small dark brown dot; hindwing shiny light grey.

MALE GENITALIA. Uncus more or less straight; valva as long as uncus-tegumen-complex, more or less parallel-sided, ventral edge in the apical third oblique narrower to apex; phallus nearly two times longer than valva, straight, without cornuti, vesica with numerous minute sclerotizations.

FEMALE GENITALIA. Segment VIII apically truncated, ostium and first part of ductus bursae with minute needle-shaped thorns, corpus bursae with numerous small sclerotized thorns with round basal plate.

VARIATION. Some specimens with darker coloration: head brush dark brown, the dark brown part of costa somewhat broader, the brown area of forewing begins at 1/2 (see fig. 242b); sometimes specimens without any pink tinge, forewing more clay-brown (see fig. 242c); some specimens with more extensive pink, including head brush (see fig. 242d); some specimens with light coloration: thorax and tegulae pale yellowish, on forewing only basal half of costa dark brown, the other part of wing pale yellowish to whitish, apical third yellowish (see fig. 242e), the dark brown dot is always visible.

SIMILAR SPECIES. The coloration distinguishes the species from the other European members of the genus.

DISTRIBUTION. Nearly all Europe; outside Europe recorded from Turkey, Armenia and Iran (Wieser *et al.*, 2002).

New records. Turkey, 1♂, 15km S Erzurum, 3000m, 20.vii.1989, leg. Fibiger & Esser, ZMUC; Armenia, 1♀, Schwanidzor, 1600m, 11.–12.vii.2009, leg. D. Vacula, NMPC.

Bionomics. The larvae has been found in the nests of various birds (Zagulajev, 1981). In Finland it has been observed as abundant in a henhouse (Mutaunen, pers. comm.). According to Hinton (1956) larvae were found feeding on partly decayed woollen clothes left out-of-doors. Larvae were described in detail and the life history was summarized by Hinton (1956) and Pelham-Clinton (1985).

243 *Tinea trinotella* Thunberg, 1794

Tinea trinotella Thunberg, 1794: 95.

Tinea tripunctella auct., nec Denis & Schiffermüller, 1775 (misidentification).

Tinea lapella Hübner, 1799: 252, nec Denis & Schiffermüller, 1775 (homonym).

Tinea ganomella Treitschke, 1833: 263.

Description. Wingspan 12–19 mm; head brush yellow-brown; labial palpus on inside and apical segment totally pale yellowish colored, on outside brown, second segment bristled; antenna nearly as long as forewing; thorax and tegulae pale yellowish, basally darker; forewing pale yellowish colored, apical quarter more greyish colored; costa at basal third dark brown; at 1/3 above cell a minute black dot, below cell with larger black dot, a third black dot at the end of cell; at beginning of fringe on dorsum a minute black dot; fringe with two darker scale-lines; tip of termen with dark brown scales; hindwing grey.

Male genitalia. Uncus basally broad, narrower to the rounded tip; valva longer than uncus-tegumen-complex, apodeme long, costa straight, in the middle of its length obliquely narrower, then again straight to rounded apex, ventral edge more or less straight too, last quarter narrower to apex; phallus as long as valva, from rounded base tapered to apex, without cornuti.

Female genitalia. Segment VIII with deep narrow U-shaped emargination, ostium area with minute thorns, ductus bursae with more strongly sclerotized ring, corpus bursae with some needle-shaped signa.

Variation. Some specimens with darker coloration, forewing covered, mostly on apical third, with dark brown scales, the minute dot at beginning of fringe not visible, hindwing with violet shine (see fig. 243b); some specimens completely whitish colored, only the first third of costa and the dots are dark brown, nearly black (see fig. 243c); some specimens with only two clearly visible black dots (below and at the end of cell), the entire forewing pale yellowish (see fig. 243d); an extreme variation is seen in some specimens from Macaronesian area: forewings white, only dark on first third of costa, the dot below cell and the dot at beginning of fringe and the base and two scale-lines on fringe (see fig. 243e). The structures of the genitalia show no reasons for separating these specimens from the typical form of the species. For an account of this form, see Rebel (1906: 40) and Klimesch (1980: 98).

Similar species. The pattern of forewing with the black dots is characteristic

for this species and distinguish it from the other members of the genus.

DISTRIBUTION. All Europe; outside Europe recorded from Algeria, Turkey, Central Asia (Turkmenistan, Tadzhikistan) and the Russian Far East.

BIONOMICS. Larvae are known from nests of many bird species, in Finland more often from tit nests (Mutanen, pers. comm.). A compilation of the habitats of the larvae is given by Petersen (1963) and Zagulajev (1981). For description of the larvae and for more detailed information see Hinton (1956) under the name *Acedes ganomella*.

REMARKS. Specimens from Madeira and the Canary Islands differ in the wing patterns from typical specimens.

284 *Tinea hongorella* Zagulajev, 1975

see Additions, p. 113.

Niditinea Petersen, 1957

Niditinea Petersen, 1957a: 134.

Type species: *Tinea fuscipunctella* Haworth, 1828.

Tineidia Zagulajev, 1960: 190 (erected as subgenus of genus *Tinea*), unavailable.

DESCRIPTION. Small to medium-sized moths, forewings speckled, labial palpi with numerous bristles.

MALE GENITALIA. In males sternite VIII strongly sclerotized at posterior edge, tergite VIII medially I-shaped strongly sclerotized in most species. Uncus triangular, apex pointed, in some species strongly sclerotized, vinculum narrow, band-shaped, saccus shorter than valva, valva often with various-shaped processes on inside subapically.

FEMALE GENITALIA. Sternite VIII shield-shaped, posteriorly emarginate, corpus bursae with two blade-like signa, each bearing some spines, and additionally with some spine-like signa.

DISTRIBUTION. About 13 species are known, seven of them occur in the Palaearctic region (three of them occur in Europe), others are New World, Afrotropical and Oriental, one species (*N. fuscella*) occurs in Australia, probably by introduction.

BIONOMICS. Larvae in detritus in nests of birds, mammals and wasps, feeding on feathers and hair, bat guano, bird droppings, detritus of animal origin. A compilation of the habitats of the larvae is given by Petersen (1963), Zagulajev (1981) and Robinson & Nielsen (1993).

REMARKS. Zagulajev (1960: 190–191) listed seven species, for which he erected *Tineidia* as subgen. n., without clearly choosing of one of them as type species. According to Nye & Fletcher (1991: 307) it is therefore not valid.

244 *Niditinea fuscella* (Linnaeus, 1758)

Tinea fuscella Linnaeus, 1758: 539.

Tinea spretella Denis & Schiffermüller, 1775: 142.

Tinea crinitella Schrank, 1802: 109.

Tinea fuscipunctella Haworth, 1828: 562.

Tinea nubilipennella Clemens, 1859: 259.

Tinea abligatella Walker, 1863: 476.

Oecophora frigidella Packard, 1867: 62.

Tinea griseella Chambers, 1873: 88.

Tinea eurinella Zagulajev, 1952: 284, figs. 1–4.

Tinea distans Gozmány, 1959: 343, figs. 1C–1D.

Description. Wingspan 10–18 mm; head brush yellowish brown, labial palpus on inside cream-colored, on outside brown; antenna nearly as long as forewing, scape with pecten; thorax and tegulae light grey brown, basally darker; forewing with the same ground color, more or less overlaid with dark brown scales, forming an indistinct pattern of dots on dorsum at 1/5, below cell at 1/2 and at end of cell at 3/4; dark brown also at base of costa and an indistinct band from base to beginning of fringe on dorsum; hindwing light grey.

Male genitalia. Uncus triangular, with pointed hook-like tip, gnathos arms curved, apically rounded; valva basally broad, costal edge straight, ventral edge in first half convex, then with clear emargination, apex truncate, subapically on inside with a tongue-like process and a smaller sickle-shaped fold; saccus shorter than valva, basally rounded, anellus broadly ring-shaped; phallus a little longer than valva, apical third narrower than base, with two small thorn-like cornuti. Sternite VIII strongly sclerotized at posterior margin, tergite VIII medially strongly sclerotized, the shape is variable (see figs. 244a–244c).

Female genitalia. The emargination at posterior edge of sternite VIII somewhat variable; ostium and beginning of ductus bursae strongly sclerotized, variable shaped, corpus bursae with two blade-like signa with more strongly sclerotized longitudinal keel, anteriorly with two or three short spines and with two separate spine-like signa.

Variation. The indistinct dark brown pattern is variable, sometimes forewing nearly completely overlaid with dark scales, only the dot at the end of cell is more or less clearly visible (see fig. 244b). In males the sclerotization of tergite VIII varies (see figs. 244a–244c); in females the sternite VIII and ostium area are variable (see figs. 244a–244c).

Similar species. Superficially not clearly distinguishable from *N. striolella* and *N. baryspilas*, but differences are seen in the genitalia structures: Males of *N. striolella* without sclerotizations on segment VIII, gnathos arms very strongly sclerotized, valva without any additional structures on inside, anellus with strongly sclerotized spines. Males of *N. baryspilas* with some characteristic structures on the inside of valva, anellus with lateral prolongations and phallus with only one tooth. Females of *N. striolella* with semicircular emargination on posterior edge of sternite VIII, signa broad, blade-shaped, without keel and with only one spine. Females of *N. baryspilas* with U-shaped emargination on posterior edge of segment VIII, ostium cup-shaped, posterior part of ductus bursae wrinkled, signa without keel, with four short spines.

Distribution. The entire Palaearctic Region; also known from the Nearctic region, introduced in Australia.

Bionomics. The species is an infrequent infestor of birds nests and also a minor pest of stored food products, often associatied with arthropod remains, notably of tyroglyphid mites, in the substrate upon which it is feeding (Hinton, 1956; Zagulajev, 1960; Robinson & Nielsen, 1993;

Robinson, 2004, 2009). Larvae were found in the larval nests of *Thaumetopoea sp.* in the Netherlands (Van der Wolf, 1999). For description of the larva and for more detailed information see Hinton (1956) under the name *Acedes fuscipunctella*. Hwang *et al.* (1978) gave information on attracting adults with ethyl alcohol.

245 *Niditinea striolella* (Matsumura, 1931)

Tinea striolella Matsumura, 1931: 1108.

Tinea semidivisa Meyrick, 1934: 480.

Tinea piercella Bentinck, 1935: 238, fig. [2].

Tinea ignotella Zagulajev, 1956a: 154, figs. 3–5.

Niditinea distinguenda Petersen, 1957a: 136, fig. 99.

Tinea pacifella Zagulajev, 1960: 205, figs. 171–173.

DESCRIPTION. Wingspan 10–17 mm; head brush cream-colored; labial palpus on inside cream-colored, on outside brown; scape of antenna with pecten; thorax and tegulae cream-colored, basally brown, partly covered by darker scales; forewing ground colourcream-colored with an indistinct pattern of dark brown scales, quite similar to that of *fuscella*, but no dark brown band from base to dorsum is visible; hindwing light grey.

MALE GENITALIA. Uncus triangular, tip truncated, lateral edges strongly sclerotized; gnathos arms in apical half broader than basally, very strongly sclerotized, dorsal edge subapically with numerous minute teeth, tip narrow and rounded; tegumen with strongly sclerotized ventral and dorsal edges; valva from base to apex evenly narrowed, the costal edge in first half more strongly sclerotized; juxta mushroom-shaped, anellus with a lot of smaller strongly sclerotized thorns with rounded tip, connected with juxta; phallus a little shorter than valva, basally bulbose, subapically with two minute teeth, tip forked.

FEMALE GENITALIA. Emargination in the middle of posterior edge of sternite VIII semicircular, strongly sclerotized; ostium V-shaped, first part of ductus bursae strongly sclerotized, corpus bursae with two blade-shaped signa, broad and obliquely truncated anteriorly, narrower to pointed posterior end, on the one anterior edge a long needle-shaped spine, and with two separate spines.

VARIATION. Sometimes the coloration is completely dark, thorax and tegulae dark brown, forewing, mainly the apical third, is completely covered with dark brown scales, the three dots are still visible (see fig. 245b).

SIMILAR SPECIES. See under *N. fuscella*.

DISTRIBUTION. Nearly all Europe, outside Europe from Turkey to Nepal, Mongolia, Siberia and Russian Far East and in the Nearctic region (U.S.A., Canada).

BIONOMICS. The species is frequently reared from detritus in nest boxes and seems to be restricted to the habitat of nest holes (Pelham-Clinton, 1985), Bentinck (1935) noted single records from mole's nest (types of *N. piercella*) and Petersen (studied material) had seen a specimen from nest of *Vespa crabro* (studied material). Jalava (1980) reared the species from nest boxes in Finland used by Ural owl (*Strix uralensis*). In Finland one

of the most common moth species occurring in barns (cowsheds), occurring in nearly all of them, also reared from detritus found on the floors. (Mutanen, pers. comm.). Jaworski *et al.* (2012) found larvae in nests of *Strix aluco*.

Remarks. According to Robinson (2007; 2009) the valid name of this species should be *N. piercella* (= *ignotella*; = *distinguenda*), while *N. striolella* (= *semidivisa*; = *pacifella*) is also a valid taxon, distributed in Russian Far East and Japan. A comparison of specimens from Russian Far East with European specimens shows no differences in the genitalia structures, which is why I retain the taxonomic status of this taxon.

246 *Niditinea baryspilas* (Meyrick, 1937), stat. rev.

Tinea baryspilas Meyrick, 1937b: 112.

Tinea unipunctella Zagulajev, 1960: 201, fig. 168.

Description. Wingspan 9–14 mm; head brush grey brown; labial palpus on inside cream-colored, on outside brown; antenna nearly as long as forewing, scape with pecten; thorax and tegulae dark brown, apically cream-colored; forewing on light grey-brown ground colour with a pattern of darker brown scales: an oblique stripe from base to dorsum, one dot above and one below cell at 1/3, a larger dot beyond cell at 2/3 and a scale-line on fringe; the other parts of forewing with scattered darker scales; hindwing shiny white.

Male genitalia. Uncus nearly triangular, with pointed tip, gnathos arms curved, apically rounded; tegumen with strongly sclerotized dorsal and ventral edges; valva basally broad, ventral edge curved upwards to rounded apex, costal edge convex, subapically vaulted, last half with longitudinal fold, on inside at 2/3 a more strongly sclerotized fold and a tube-like process; vinculum band-shaped, saccus with bulbous base; anellus more strongly sclerotized, laterally with two prolongations with dentate posterior edge; phallus as long as valva, apical half thin, subapically with one sclerotized tooth. Sternite VIII strongly sclerotized at posterior margin, tergite VIII medially strongly sclerotized.

Female genitalia. Emargination on posterior edge of sternite VIII U-shaped, ostium cup-shaped, more strongly sclerotized, first part of ductus bursae wrinkled, signa blade-shaped, without keel, with four short spines in basal half, additionally two minute spines in corpus bursae.

Variation. Superficially no variability is seen. In male genitalia, the shape of the fold and process inside the valva varies (see figs. 246b–246d).

Similar species. See under *N. fuscella*.

Distribution. In Europe known from Croatia and Cyprus, outside Europe from Tunisia through Egypt and Arabian Peninsula to Central Asia and Japan.

Bionomics. Larvae in nests of predatory birds *Strix uralensis* (Nasu *et al.*, 2007a) and *Accipiter nisus* (Nasu *et al.*, 2007b), and in nest boxes of *Parus major* and *P. varius* (Nasu *et al.*, 2008).

Remarks. In the past the taxa *T. baryspilas* and *T. unipunctella*, were regarded as synonyms of *Niditinea tuguriali*s (Meyrick, 1932), described from Kashmir. However Robinson (2007; 2009)

regarded *N. tugurialis* as a valid taxon without synonyms, separate from *T. baryspilas* with the synonym *T. unipunctella*. The examination of types (lectotype of *T. baryspilas* and lectotype and paralectotypes of *T. tugurialis*) confirms the opinion of Robinson. The European specimens hitherto labelled as *N. tugurialis* should be named *N. baryspilas*.

247 *Niditinea truncicolella* (Tengström, 1848)

Tinea truncicolella Tengström, 1848: 108.

Tinea rosenbergerella Nolcken, 1871: 484.

Description. Wingspan 9–13 mm; head brush golden brown; labial palpus on inside lighter colored, on outside brown; antenna as long as forewing, scape with pecten; thorax and tegulae dark brown; forewing with same coloration, without any pattern, only with some scattered light scales; hindwing brown grey.

Male genitalia. Uncus triangular, with thin rounded tip, gnathos arms broad, with rounded tip; valva stout, costal edge more strongly sclerotized, vaulted at 1/2, than narrower to rounded angle of apex, ventral edge vaulted at 1/3, than convex, ending in triangular tooth, a narrow fold on inside from base to 1/2; vinculum band-shaped, saccus short, connected with broad band-shaped anellus with minute sclerotized thorns; phallus from rounded base tapering to rounded apex. Sternite VIII with thin, strongly sclerotized edge, tergite VIII with triangular sclerotization in the middle.

Female genitalia. Emargination of posterior edge of sternite VIII U-shaped, the more strongly sclerotized lateral edges prolonged to ostium, posterior part of ductus more strongly sclerotized too; the two signa narrow, blade-shaped, with longitudinal keel, at anterior end with needle-shaped spine.

Variation. No variability has been observed. The various appearance of signa depends on preparation (see fig. 247a).

Similar species. Superficially distinguishable from the other members of the genus by the golden brown head brush and the unicolorous forewing.

Distribution. Mountain regions of Europe (The Pyrenees, Alps, Balkan mountains), Germany, Czech Republic, Slovakia, Scandinavia, East European Russia, outside Europe from Siberia, Russian Far East (Ponomarenko, 2016) and China.

Bionomics. Larva in nests of the ant *Camponotus herculeanus* (Hymenoptera), probably feeding on detritus (Bengtsson, 2008). In Finland it is easy to find adults late in the evening on trunks (and sometimes buildings made of logs) inhabited by *Camponotus*. The specimens are mostly seen running on the trunk and often visit the holes made by the ants. Sometimes males swarm around the trunks in the evening sunshine. It seems to inhabit most ant nests. (Mutanen, pers. comm.).

Remarks. The species seems to have an arctic-alpine distribution.

Proterospastis Meyrick, 1937

Proterospastis Meyrick, 1937a: 83.

Type species: *Proterospastis barystacta* Meyrick, 1937.

Paratinea Petersen, 1957a: 159.

Type species: *Tinea merdella* Zeller, 1847 [recte: 1852].

Description. Small-sized specimens with antenna as long as or longer than the forewing; forewing more or less narrow, with pattern of spots and streaks.

Male genitalia. Gnathos arms angled with broad base, vinculum broad, saccus basally broad.

Female genitalia. Hitherto known only from some species.

Distribution. Nearly 30 species are known, most of them are distributed in the Palaearctic region, 11 are Afrotropical, 6 are Oriental, 2 are Australasian. From Europe four species are known with more or less circum-mediterranean distribution.

Bionomics. The life history is known for only a few species. Chrétien (1915) described in detail the life history, larvae and pupae of *P. ellipticella*, known from North Africa: Larvae live in a flattened elliptical case among detritus, spiders' webs and caterpillar silk at the base of trees and in burrows of the rodent *Ctenodactylus gundi*, together with larvae of species of the pyralid genus *Aglossa*, feeding on droppings. A compilation of the known records is given by Robinson (2009).

Remarks. The year of the original description of the type species *P. merdella* is 1852 and not 1847 (see remarks under *P. merdella*)

248 *Proterospastis merdella* (Zeller, 1852)

Tinea merdella Zeller, 1852: 162.

Tinea tristigmatella Zeller, 1847: 808 (misinterpretation of *Tinea tristigmatella* Costa, 1836).

Monopis siccanella Chrétien, 1915: 368.

Tineola quadruplella Caradja, 1920: 171; **syn.n.**

Tineola atriensis Meyrick, 1925: 217.

Tinea palaestinella Amsel, 1935: 314, pl. 12, fig. 154.

Description. Wingspan 7–9 mm; head brush light yellow; labial palpus with same coloration, second segment with dark bristles; antenna longer than forewing, scape without pecten; thorax and tegulae light yellow, basally somewhat darker; forewing yellow with a pattern of dark brown scales: on costal edge from base to apex, one stripe near base from costa, nearly reaching dorsum, a second stripe, narrower than the basal one, at 1/3, from costa to dorsum, sometimes interrupted in the middle, a third stripe at 2/3 from costa to dorsum, prolonged along base of fringe to apex as thin scale-line; hindwing light grey.

Male genitalia. Uncus with rounded tip, gnathos arms with broad base, narrower to nearly pointed tip; saccus basally broad, nearly as long as uncus; valva parallel-sided, at apex obliquely truncated; phallus distinctly longer than valva, slightly curved, vesica with numerous minute blunt thorns.

Female genitalia. Sternite VIII on posterior edge in the middle with cup-shaped emargination, laterally rounded; ostium somewhat funnel-shaped, corpus bursae with two patch-shaped signa, each with minute arrow-shaped thorn.

Variation. Sometimes the yellow parts of forewings scattered with dark brown scales.

Similar species. Similar to *P. autochthones*, but labial palpus only with some bristles, outside with lighter coloration, scape without pecten, hindwing light grey.

Male genitalia characterized by parallel-sided valva with oblique truncated apex; female genitalia distinguishable by the shape of signa.

DISTRIBUTION. Canary Islands, Iberian Peninsula, Malta, Italy: Sicily, Croatia, Greece (Islands of Aegina, Samos, Crete), Cyprus, outside Europe in Algeria, Libya, Egypt and Turkey.

New record. Cyprus, 1♂, Nikokleia, 10.x.2013, leg. et coll. I. Barton.

BIONOMICS. Zammit-Maempel (1981) discovered the larval case in association with spiders web in a cave in Malta.

REMARKS. Zeller referred in the original description (1852) to his paper from 1847: "Isis 1847. S. 808 (unter [under] *Tin. tristigmatella*)." He compared specimens which were damaging preserved animals with another specimen from his collection, collected by Loew near Constantinople. His opinion in that publication was that the mentioned specimen belonged to Costa's *Tinea tristigmatella* (now a synonym of *Tinea flavescentella* Haworth, 1828) ("Costa's *Tristigmatella* paßt recht gut darauf;" [*tristigmatella* of Costa matches it well]). This specimen later became (1852) the holotype of *Tinea merdella*.

In the past it was impossible to clarify the exact taxonomic place and status of *Tineola quadruplella* Caradja, 1920. Petersen (1957a: 163), according to the description, transferred it into the genus *Paratinea* and he presumed, that it could be a synonym of *P. merdella* or *P. autochthones*.

In reply to my request for the loan of the holotype (♂), Mr. Stanescu, custodian in the Museum Bucuresti, the location of the Caradja collection, informed me, that "... there is no type specimen or any specimen designated as *quadruplella*..." in the collection.

According to the original description and under consideration of the known distribution it seems justified to put *Tineola quadruplella* Caradja, 1920 as new synonym of *Proterospastis merdella* (Zeller, 1852).

249 *Proterospastis autochthones* (Walsingham, 1907)

Tineola autochthones Walsingham, 1907: 191.

Tineola tripolitella Rebel, 1908: 289; **syn. n.**

DESCRIPTION. Wingspan 9–11 mm; head brush light yellow; labial palpus on inside with same coloration, on outside dark brown, second segment with numerous bristles; antenna longer than forewing, scape light yellow, with pecten, flagellum dark, somewhat ringed; thorax and tegulae light yellow, basally darker; forewing light yellow with a pattern of brown scales: a stripe near base from costa to dorsum, a patch on costa at 1/3, reaching cell, a small patch on dorsum opposite the costal patch, a patch on costa at 2/3, prolonged oblique to base of fringe and to apex; the yellow part with scattered brown scales; hindwing dark grey.

MALE GENITALIA. Uncus apically truncate, with rounded edges, gnathos arms fused; valva with long apodeme, from base narrowed to rounded apex, phallus longer than valva, basally broader, vesica with numerous minute strongly sclerotized blunt thorns.

FEMALE GENITALIA. Sternite VIII on posterior edge with deep U-shaped

emargination, ostium broadened, covered with minute pointed thorns, signa in corpus bursae are strongly sclerotized pointed thorns on a plate-shaped base.

VARIATION. Sometimes the patch on costa at 1/3 connected with the patch on dorsum to form a stripe, sometimes some signa-thorns on one base (see fig. 249a).

SIMILAR SPECIES. Similar to *P. merdella*, differences see under that taxon.

DISTRIBUTION. In Europe hitherto known only from Malta, outside Europe known from North Africa (Libya, Morocco, Algeria and Tunisia).

New records: Morocco, 1♂, Zagora, Tagouniite, 19.v.2011, leg. J. & A. Kullberg, FMNH; 1♂, Souss-Massa-Draa Ouarzazate, 11.v.2011, leg. J. & A. Kullberg, FMNH.

BIONOMICS. Larvae in a flattened case with silk covering on the outside, feeding on decomposing wood (Gaedike & Zerafa, 2010), Adults have been collected in June.

REMARKS. A detailed study of the genitalia structure shows no clear differences between the paratype slide no. 4677 (Brit. Mus.(N.H.)) of *Tineola autochthones* and the holotype no. 6014 (Museum Vienna) of *Tineola tripolitella*. The very small differences in the shape of the valvae represent intraspecific variability. Herewith *Tineola tripolitella* Rebel, 1908 is established as synonym of *Proterospastis autochthones* (Walsingham, 1907).

250 *Proterospastis orientalis* (Petersen, 1959)

Paratinea orientalis Petersen, 1959: 569, fig. 15.

DESCRIPTION. Wingspan 8–10 mm; head brush light brownish; labial palpus short, with same coloration, second segment only with only one apically; antenna as long as forewing, scape without pecten; thorax and tegulae brownish grey, basally darker; forewing brownish cream-colored, scales with lighter tip, after 1/2 some darker brownish scales form an arrowhead-like pattern, directed towards apex, some darker scales on base of fringe; on underside a hyaline spot at the end of cell, like *Monopis*; hindwing grey-brown.

MALE GENITALIA. Uncus apically with short incision, tegumen and gnathos characteristic for the genus, saccus as long as valva; valva lanceolat-, parallel-sided, ventral edge from last quarter to rounded apex obliquely truncated; phallus a little longer than valva, basally broad, vesica with numerous minute shell-shaped and two stick-like sclerotizations.

FEMALE GENITALIA. Unknown.

VARIATION. Shape of valva is somewhat variable (see figs. 250a–250b).

SIMILAR SPECIES. The pattern of forewing and the hyaline spot on underside distinguish the species superficially from the other members of the genus.

DISTRIBUTION. In Europe (Gaedike, Sammut & Seguna, 2011) known only from Greece (Crete: Makrigialos) and Malta, outside Europe known from Morocco and Afghanistan: Sarobi (type locality).
New record. Morocco, 1♂, Marakech-Tensift-El Haouz, Asguine, 16.viii.2013, leg. et coll. Werno.

BIONOMICS. Larval pabulum unknown, the few known adults have been collected in June, August and September.

Ceratobia Zagulajev, 1974

Ceratobia Zagulajev, 1974: 410.

Type species: *Ceratobia adzharica* Zagulajev, 1974.

DESCRIPTION. Small-sized moths, antenna a little longer than forewing, scape with pecten, labial palpus with only one or two bristles on second segment, forewing with pattern of darker scales.

MALE GENITALIA. Uncus large, apically truncated or with a smaller emargination in the middle, gnathos arms long, more or less narrow, with pointed tip, apically connected, valva parallelsided, only in *C. kintrishica* Zagulajev, 1974 with costal process, phallus with smaller cornuti and various sclerotizations in the vesica.

FEMALE GENITALIA. Posterior edge of sternite VIII with slit-shaped incision in the mid, corpus bursae with thorn-shaped signa.

DISTRIBUTION. Five species are known, four of them are restricted to the Palaeactic, the fifth is known from Palaearctic and Neotropic Regions. In Europe represented by two species.

BIONOMICS. Life history of larvae is known only for *C. oxymora*: bat guano.

251 *Ceratobia ratjadae* Passerin d'Entrèves, 1978

Ceratobia ratjadae Passerin d'Entrèves, 1978: 1, pl. 1.

DESCRIPTION. Wingspan 7–8 mm; head brush light golden yellowish, in the neck and above palpi whitish; labial palpus white, apical segment basally darker; scape of antenna on underside whitish; thorax and tegulae light cream-colored, with scattered darker scales; forewing with same ground coloration, with a pattern of dark and light brown scales: base with scattered dark brown scales, with a dark brown streak from costa at 2/3 to cell, at 1/3, below cell, a dark brown dot; fringe nearly completely brown, basally with dark brown scale-line; apical third of wing overlaid with light brown scales, a light brown patch on termen at beginning of fringe, prolonged obliquely to cell; costa in the first two-thirds covered with scattered dark brown scales; hindwing grey.

MALE GENITALIA. Uncus apically with small emargination, laterally with rounded tips, gnathos arms characteristic for the genus, angled near base and directed upwards, narrower to pointed tip; vinculum band-shaped, saccus triangular, laterally incised, basal part with more strongly sclerotized edges; valva as long as saccus, parallelsided, ventral edge in last quarter obliquely narrower to rounded apex; phallus long, straight, vesica with numerous minute strongly sclerotized teeth.

FEMALE GENITALIA. Unknown.

VARIATION. Only few specimens were studied.

SIMILAR SPECIES. The coloration and the pattern of forewing make the species superficially distinguishable from *C. oxymora*, in male genitalia the shape and the size of saccus and gnathos arms and the phallus without cornuti are characteristic.

DISTRIBUTION. Spain: Prov. Alicante and Baleares: Mallorca.

New records. Spain, 2♂, Prov. Alicante, Parcent, 500m, 8.vii.2010, 30.v.2011, leg. H. Rietz,coll. Roweck; 1 ♂, Denia, ex l., soil, debris, 29.iv.2005, leg. F. Groenen, coll. Schreurs in RMNH.

BIONOMICS. One specimen was reared ex larvae from "soil, debris", without any additional details.

252 *Ceratobia oxymora* (Meyrick, 1919)

Tinea oxymora Meyrick, 1919: 274.

Description. Wingspan male 7–8, female 10–11 mm; head brush grey-brown; labial palpus with same coloration, on inside lighter, second segment apically with one bristle; antenna as long as forewing; thorax and tegulae dark grey-brown, apically lighter; forewing fuscous, mottled with yellowish and blackish scales, darker patches at 1/3 below cell and at 2/3 after end of cell; a streak of the same colour-from the base to 1/2 below the first patch, often not visible; hindwing grey.

Male genitalia. Uncus large, acute; gnathos arms as long as uncus, basally rounded, angled at 1/4, ventral edge pointed, then narrower to pointed apex; saccus short; valva somewhat longer than uncus, parallel-sided, ventral edge subapically oblique to rounded apex of costal edge; phallus as long as valva; vesica with numerous small spines; two cornuti, one a sclerotized pole and a the other smaller, spoon-shaped.

Female genitalia. Sternite VIII characteristic for the genus, ductus bursae with two rod-shaped sclerotizations, corpus bursae with some spine-shaped signa.

Variation. Some specimens with darker coloration (see fig. 252b).

Similar species. See under *C. ratjadae*.

Distribution. In Europe known from Madeira (Gaedike & Karsholt, 2001) and from Canary Island Tenerife; outside Europe known from Marquesas Islands (Robinson, 2009), Antigua (Davis, cited by Gaedike & Karsholt, 2001) and Peru (locus typicus).

New records. Spain: Canary Island Tenerife, numerous ♂ and ♀, Guimar, 26.xi.–2.xii.2011, 10.–16.xi.2012, 7.–23.xi.2014, leg. A. Stübner, ZSM; SDEI.

Bionomics. Larval pabulum unknown. One adult was collected in a bat-cave in Antigua. Adults were collected in Madeira in August and in December, in Tenerife in November and December. A. Stübner (pers. comm.) collected adults in Tenerife flying at twilight in an Avocado plantation. This collection place suggests that larvae probably live on plant detritus.

Remarks. It seems to be an introduction from the Neotropics through Madeira to Canary Islands.

Metatinea Petersen & Gaedike, 1979

Metatinea Petersen & Gaedike, 1979: 407

Type species: *Tinea immaculatella* Rebel, 1892.

Description. Small moths, the head brush with very long scales, directed upwards; antenna with pecten; second segment of labial palpus apically with some bristles; coloration of forewings without any pattern.

Male genitalia. Characterized by a short process on posterior edge of vinculum and by the shape of valva, which is divided into a large ventral part and a twice longer costal arm.

Female genitalia. Oviscapt very long, dorsal part of forked anterior apophyses interrupted by a minute area with long bristles.

Distribution. Two species are known from the Palaearctic region, one from Afghanistan (under the name *Paratinea*

nana (Petersen, 1973a)), one from Canary Islands and West Mediterranean area.

BIONOMICS. The only indication as to larval life history was given by Klimesch (1980) for *M. immaculatella* (Rebel, 1892) (see below).

253 *Metatinea immaculatella* (Rebel, 1892)

Tinea merdella ? var. immaculatella Rebel, 1892: 269.

DESCRIPTION. Wingspan 9–11 mm (♂), 10–14 mm (♀); head brush cream-colored to light yellowish, from neck to insertion of antennae with darker scales; labial palpus on inside light cream-colored, on outside brown, second segment apically bristled; scape of antenna on underside light cream-colored, on upperside brown; thorax and tegulae yellowish cream-colored, basally dark brown; wings narrow, forewing brown, without any pattern; hindwing light whitish grey.

MALE GENITALIA. Uncus apically with light emargination, with rounded edges, gnathos arms narrow, before 1/2 angled, with pointed tip; vinculum band-shaped, posterior edge with thin finger-like process, saccus well developed, apically rounded; valva with long apodeme, divided into a large more or less square ventral part, posteriorly with fold, and with a long spoon-shaped costal arm; phallus nearly as long as valva, straight, vesica with minute sclerotizations.

FEMALE GENITALIA. Anterior apophyses forked, dorsal arms interrupted with a small area with longer bristles, characteristic for the genus; signum clasp-shaped, the arms thin, with pointed tip.

VARIATION. The coloration of head brush sometimes more or less clear divided into darker basal part and lighter posterior part (see fig. 253b).

SIMILAR SPECIES. The often-visible two-colored head brush and the shape of genitalia (vinculum with process, valva divided into two parts; shape of signum and the very long oviscapt) distinguish the species from the members of *Proterospastis* and *Ceratobia*.

DISTRIBUTION. Spain: Canary Islands, France: Corsica (Gaedike, 2010).

BIONOMICS. According to Klimesch (1980) the commonest tineid species of the Canary Islands, adults very common during dusk and at light around rotten *Agave*, *Opuntia* and *Euphorbia canariensis*, he reared one male from a rotten stem of *Euphorbia canariensis*.

REMARKS. Described as a variation of *Tinea merdella* Zeller, based on 3 specimens from Fuerteventura. After study of additional specimens from Tenerife Rebel (1896: 123) corrected his opinion about the status and described the taxon in more detail. According to ICZN (45.6.4.) the description from 1892 is valid.

Phereoeca Hinton & Bradley, 1956

Phereoeca Hinton & Bradley, 1956: 45.

Type species: *Tineola uterella* Walsingham, 1897.

DESCRIPTION. Small moths, colored brownish, forewing with some (up to four) darker spots. Antenna as long as or longer than forewing, scape with a pecten of long, hair-like scales.

MALE GENITALIA. Uncus cowl-like, vinculum and tegumen strongly elbowed,

gnathos arms long and separate, juxta strongly developed and fused.

Female genitalia. Oviscapt short, apically with thorn-like setae, ductus bursae more or less strongly sclerotized.

Distribution. The genus occurs throughout the wet tropics of the Old and New World and in Australia (with one species). Two species occur in the Palaearctic Region.

Bionomics. The species of the genus are the common tropical "wall bagworms". The larva feeding from and pupating in a characteristic flattened, broadly spindle-shaped case composed mainly of grit with fragments of detritus. Robinson & Nielsen (1993) discussed in detail the various opinions about the larval food, which are found in the literature.

Remarks. The nomenclature and identity of the constituent species of the genus were considerably confused. Robinson & Nielsen (1993) clarified the identity of the eleven names, which are applicable to four species, two of these with mixed syntype series.

254 *Phereoeca allutella* (Rebel, 1892)

Tineola allutella Rebel, 1892: 270.
Tinea verna Meyrick, 1924: 72.

Description. Wingspan 8–13 mm; head brush dark brown-grey; labial palpus on outside with same coloration, on inside light grey, second segment bristled; antenna longer than forewing; thorax and tegulae dark brown-grey too; forewing with dark ground colourand with a pattern of three more dark dots, the largest above cell at 1/2, the smallest below cell at 1/3 and a nearly sickle-shaped dot at the end of cell, the remaining area overlaid with pale scales; hindwing shiny light grey.

Male genitalia. Uncus from broad base narrower to truncated apex with rounded edges, gnathos arms somewhat curved, with pointed tip; tegumen with more strongly sclerotized edges, saccus narrow, fused with juxta; valva long, narrow, somewhat curved upwards, apodeme and basal edge stronger sclerotized, near base ventrally and dorsally each with a short digitate process, apically with rounded tip, phallus appr. 1.25 times longer than valva, vesica with some small rounded sclerotized thorns.

Female genitalia. Ostium laterally with two oval lap-shaped and bristled parts, ductus bursae more strongly sclerotized, with transverse wrinkles.

Variation. The females always lighter colored: head brush light brownish, forewing nearly completely overlaid with pale scales, only the three dots and apex clearly darker (see fig. 254b).

Similar species. Superficially distinguishable from *lodli* by having only a pattern of dots instead of stripes; in male genitalia the digitate processes on the valva and the shape of vesica are differences, in female genitalia the configuration of ostium distinguish *allutella* from *P. lodli*.

Distribution. In the Palaearctic Region known only from the Canary Islands, Madeira, and Italy: Sardinia (Gaedike, 2010). Other records are from the Afrotropical, Australian and Oriental Regions.

Bionomics. The larvae feed from a characteristic flattened, broadly spindle-shaped case composed mainly of grit with

fragments of detritus. The case is similar to that of *Praecedes atomosella* but on average larger and more pointed at proximal end. The cases can be found on house walls. According to Robinson & Nielsen (1993) and Karsholt (pers. observ.) larva probably feeds on chitin in the form of dry insect remains. However, Stübner (pers. comm.) collected larvae indoors, feeding on excrement of Gecko species (*Tarantola delalandii*?), and reared them successfully. A detailed description of the larvae is given by Hinton & Bradley (1956). The life history and the behaviour in a house on Barro Colorado Island, Panama were described by Aiello (1979).

255 *Phereoeca lodli* Vives, 2001

Phereoeca lodli Vives, 2001: 165, figs. 5, 8.

Description. Wingspan 9–10 (males), 11–13 mm (females); head brush dark brown-grey; labial palpus with same coloration, on inside lighter, second segment bristled; antenna longer than forewing; thorax and tegulae dark brown-grey, forewing with same ground colourand with a dark brown pattern: a stripe near base from costa to dorsum, a stripe before 1/2 from costa to dorsum, directed obliquely to base, a third stripe at 3/4 below costa to dorsum, and a patch on apex; the remaining area overlaid with paler scales; hindwing grey.

Male genitalia. Uncus basally broad, narrower to truncate apex; gnathos arms above base angled, curved upwards, with pointed tip; tegumen with more strongly sclerotized dorsal edge; saccus as long as tegumen, fused with juxta; valva longer than saccus, apodeme broad, with more strongly sclerotized edges, the dorsal edge elongate sickle-shaped as strongly sclerotized row on inside of valva, parallel-sided to rounded apex, without any finger-like processes, phallus distinctly longer than valva, lightly curved, vesica with a row of small strongly sclerotized blunt thorns.

Female genitalia. Sternite VIII with rounded posterior edge, in the middle with a shorter slit, ostium and ductus bursae stronger sclerotized, ductus bursae with numerous crosswise and lengthwise wrinkles.

Variation. The dark brown stripe before 1/2 can be divided into two patches, this variation can sometimes be seen on a single specimen (see fig. 255a); some specimens with lighter brown head brush and forewing nearly completely covered with pale scales (see fig. 255b).

Similar species. See under *P. allutella*.

Distribution. Spain (mainland), Portugal (Billi & Nel, 2014), Canary Island: Gran Canaria, Malta (Gaedike & Zerafa, 2010), France (Nel & Varenne, 2016b), Northern Ireland.

New records. Spain: Canary Islands, 1♀, Gran Canaria, Fataga, 16.iii.1996, leg. K. Nupponen & J. Junnilainen, coll. Junnilainen;

U.K.: Northern Ireland, 1♂, County Antrim, Greenmount Agricultural College Campus, 7.viii.2014, leg. R. Monteith.

Bionomics. Egg, larva, pupa and case were described by Huertas Dionisio (2005), he observed four generations in Spain (Huelva). Details of the life history of larvae were published by Heckford (2012). He found cases on walls and stones. Concerning life history he write: "The

larvae were offered some dead Tipulidae, Microlepidoptera and *Calliphora vomitoria* (Linnaeus, 1758) (Diptera). They readily ate the abdomens, but no other parts, of the Tipulidae and Microlepidoptera but did not eat any part of the *Calliphora vomitoria*. I kept all the larvae together and there was no sign that they tried to eat the cases, or contents, of other individuals."

Remarks. Through the courtesy of Martin Honey I was able to verify the record from Northern Ireland. It is probably an introduction from the tropics.

Montetinea Petersen, 1957

Montetinea Petersen, 1957b: 342.

Type species: *Tineola tenuicornella* Klimesch, 1942.

Description. Small species, with pale shiny coloration, without any pattern on forewing; antenna longer than forewing; labial palpus hanging, third segment about 3/4 of the length of second segment; hind tibia and hind tarsus remarkable long.

Male genitalia. Uncus cap-shaped, gnathos arms fused, vinculum and saccus with more strongly sclerotized lateral edges; valva spoon-shaped, costal edge with small hook- or finger-like process.

Female genitalia. Ostium lip covered with numerous minute spines; with or without signa.

Distribution. The two known species are distributed in mountainous regions in the Alps and the Balkan Peninsula.

Bionomics. Larvae, as far as known, live on bat guano and on dead micromammals.

Remarks. The affiliation of this genus to the group of lichenophagous genera, as it was done by Petersen (1957) has to be corrected. He probably justified it with the fact, that Klimesch collected the type series of *Tineola tenuicornella* flying out from old stone walls, a habitat which is often covered in lichens. The studies of Parenti (1962; 1967) on *M. montana* show that larvae are present in caves with bat guano, a similarity to some genera of Tineinae (*Niditinea*, *Ceratobia*, *Proterospastis*).

256 *Montetinea tenuicornella* (Klimesch, 1942)

Tineola tenuicornella Klimesch, 1942: 392, fig. 34.

Description. Wingspan 9–11 mm; general coloration see under the genus.

Male genitalia. Uncus, gnathos arms and vinculum-saccus with characteristics of the genus; valva with more strongly sclerotized basal edge, ventral edge basally with small digitate process, the first half of corpus valvae more or less parallelsided, second half enlarged to rounded apex, on costal edge before apex a small more or less triangular hook; phallus with rounded base, straight, versica with numerous minute thorns.

Female genitalia. Ostium lip cup-shaped, the first part of ductus bursae laterally stronger sclerotized, the area around ostium covered with numerous minute spines; corpus bursae without signa.

Variation. The hook on the dorsal edge of valva sometimes more finger-like (see fig. 154 in Petersen, 1957b).

SIMILAR SPECIES. Superficially not distinguishable from *M. montana*, differences are seen in the genitalia structure. Males: valva with narrow first half and with more or less hook-shaped process on costal edge, while *M. montana* with parallelsided two thirds of valva and more or less finger-like process, sometimes only visible as small curvature. Females with signa in corpus bursae.

DISTRIBUTION. Switzerland (Petersen & Gaedike, 1985b; Kopp & Sonderegger, 2010), Croatia, Montenegro and Italy (Burmann & Huemer, 1998).

New record. Montenegro, 1♂, Dolovi, 10.vi.2011, leg. I. Richter, coll. Richter.

BIONOMICS. Adults have been collected by Klimesch (1942) flying out from stonewalls, possibly indicating that the larvae live on detritus or guano located inside the walls.

257 *Montetinea montana* Petersen, 1957

Montetinea montana Petersen, 1957b: 344, fig. 155.

DESCRIPTION. Wingspan 10 mm; general coloration see under the genus.

MALE GENITALIA. Uncus, gnathos arms and vinculum-saccus with characteristics of the genus; valva basally without more strongly sclerotized edge, the first two thirds more or less parallelsided, last third somewhat broader, apex rounded, costal edge at 3/4 with a small digitate process; phallus as long as valva, more or less straight, vesica with minute thorns.

FEMALE GENITALIA. As I could not obtain a female for examination, I refer to plate II: figs. 1–2 in Parenti (1962): Ostium lip cup- or funnel-shaped, the area around it covered with minute spines, ductus bursae stronger sclerotized, the sclerotizations band-shaped prolonged up to insertion of ductus seminalis, corpus bursae with some larger signa with one side serrate and additionally with some needle-shaped signa.

VARIATION. The finger-like process on valva sometimes visible only as small curvature (see plate I: fig. 1 in Parenti, 1962).

SIMILAR SPECIES. See under *M. tenuicornella*.

DISTRIBUTION. France: Hautes-Alpes, Alpes-Maritimes (Nel, 2003); Switzerland (Macugnaga: type locality); Italy (Alps; Apennin Mts).

BIONOMICS. Larvae were found in caves in bat guano (Parenti, 1962; 1967); Nel (2003) observed larvae on bat guano and on dead micromammals. The location in the Appenino Emiliano (Tana della volpe di Benedello) is described in detail by Parenti (1962).

Monopis Hübner, 1825

Monopis Hübner, 1825: 401.

Type species: *Tinea rusticella Hübner*, 1796.

Blabophanes Zeller, 1852: 100.

Type species: *Tinea ferruginella* Hübner, [1813].

Hyalospila Herrich-Schäffer, 1853: pl. 10, fig. 14.

Type species: *Tinea rusticella* Hübner, 1796.

Rhitia Walker, 1864a: 818.

Type species: *Rhitia congestella* Walker, 1864.

Eusynopa Lower, 1903: 237.

Type species: *Blabophanes chrysogramma* Lower, 1903.

Monopina Zagulajev, 1955: 282, nomenclaturally unavailable name.

Monopina Zagulajev, 1960: 132.

Type species: *Tinea fenestratella* Heyden, 1863.

DESCRIPTION. Small to larger species (8–24 mm); forewing often strongly-patterned, with strongly modified veins and characterized by having a hyaline spot. This spot is not truly hyaline, it is always covered with scales on both sides of the wing, but these are usually much less pigmented than those surrounding and more closely appressed to the wing membrane.

MALE GENITALIA. Uncus elongate, triangular, almost entirely fused medially but with bifid apex; gnathos arms triangular, broad at base, with very long attachment to tegumen, tapered apically, apices free and slightly curved; vinculum and tegumen narrow, strongly transverse; valva simple, more or less elliptic, medially with a patch of dense elongate setae; phallus slender, elongate, vesica with microtrichia and numerous minute spicular cornuti.

FEMALE GENITALIA. Oviscapt short, appr. 0.3 times of the length of abdomen, reduced in larviparous species; ostium lip usually M-shaped, antrum posteriorly funnel-shaped, anteriorly elongate, stronger sclerotized; corpus bursae with a band of numerous spicular or dentate signa.

DISTRIBUTION. Throughout the Old World from boreo-alpine and tundra habitats to tropical rainforest and desert, the genus has been recorded from numerous Pacific Islands. Only a few species are known from the New World. More than 85 species are known worldwide, with about 25 species in the Palaearctic region, 16 of them present in Europe.

BIONOMICS. Larvae are keratophagous and chitinophagous, feeding on feathers, fur, wool, hides, guano in birds' nests, and on animal remains in general. Some species have become pests, especially *M. crocicapitella* as occasional pest of stored food products as well as of industrial and domestic wool fibres and fur. Some species are larviparous, the female retaining the fertilized eggs in an enlarged oviduct until the first-instar larvae are fully developed.

REMARKS. In 1955 *Monopina* was proposed to denote a subgenus of *Monopis* Hübner, 1825, containing *Monopis* (*Monopina*) *nonimella* Zagulajev sp. n. [now a a junior subjective synonym of *Tinea omichlopis* Meyrick, 1928] and *M. fenestratella*; but there was no type-species fixation as required under the ICZN. It was a nomenclaturally unavailable name. A valid description as subgenus was published in 1960.

258 *Monopis laevigella* (Denis & Schiffermüller, 1775)

Tinea laevigella Denis & Schiffermüller, 1775: 139.

Tinea rusticella Hübner, 1813, nec Hübner, 1796.

Tinea vestianella sensu Stephens, 1835: 344, misidentification.

DESCRIPTION. Wingspan 13–21 mm; head brush light yellowish, above palpi somewhat darker; labial palpus on inside pale yellowish, on outside dark brown, apically bristled, third segment on inside basally

dark brown, apex completely pale yellowish; scape of antenna yellowish, with pecten, flagellum unicolored brown-grey; thorax and tegulae dark brown; forewing dark brown, covered with scattered pale scales, area between hyaline spot and costa more or less overlaid with pale scales, dorsum with a row of minute pale dots, the dark scale-line on fringe interrupted by some pale yellowish stripes, apical half of fringe pale yellowish; hindwing grey.

MALE GENITALIA. Valva elliptic, broadest after the half of the length, the brush of long setae on inside directed basally, not reaching the costal edge; phallus as long as saccus, narrow, vesica with numerous short thorns, with two thin cornuti with pointed tip, anellus net-like, with numerous short thorns, basally rounded.

FEMALE GENITALIA. Posterior edge of sternite VIII with more or less emargination, ostium lip more or less funnel-shaped, first part of ductus bursae strongly sclerotized, corpus bursae with a band of thorn-like signa with rounded base.

VARIATION. Some specimens with more golden yellowish head brush; the forewing nearly completely overlaid with pale scales, the second half of costa with a thin yellowish line (see fig. 258b). In male genitalia the shape of valva somewhat variable, the appearance of phallus and anellus depends on preparation (see figs. 258a–258r); the shape of sternite VIII and ductus bursae is variable (see figs. 258a–258e).

SIMILAR SPECIES. Similar to *M. weaverella*, superficially distinguishable from it by having dark outside of labial palpus and forewing without clear patch at beginning of fringe. In male genitalia the shape of valva is different (broadest after middle in *M. laevigella*, while broadest before or at middle in *M. weaverella*); the brush of setae on inside of valva not protruding beyond costal edge in *M. laevigella*; anellus thorns more or less with rounded base. In female genitalia there are no clear differences visible, the ostium lip is more or less funnel-shaped and ductus bursae is stronger sclerotized, while *M. weaverella* with more or less straight ostium lip and not so strongly sclerotized ductus bursae. The similarities and differences between these two taxa were discussed by Petersen (1960).

DISTRIBUTION. Entire Palaearctic region, in the Holarctic (cited in Karsholt *et al.* 2015) widespread in Canada (Landry & Pohl, 2018), less common in the U.S.A. (D. R. Davis, in litt.).

BIONOMICS. Larvae feed in bird and mammal nests as well as in bird-pellets, in bat- and bird-guano, animal corpses, in detritus of animal origin. A compilation of the habitats of the larvae is given by Petersen (1963) and Zagulajev (1981). Larva was described in detail by Hinton (1956). Robinson (1980) mentions this species also as a cave-dweller. A compilation of the published results concerning attraction of pheromones is given by El-Sayed (2012) (under the name *M. rusticella*).

REMARKS. I was informed by my colleague Marko Mutanen that he found specimens, collected in Finland, having genetic evidence, that *M. laevigella* is a complex of two species. He wrote: "…two types that occur in sympatry have a deep split in mitochondrial DNA and similar split in nuclear DNA that is very strong evidence that there are two reproductively isolated species in the complex. …" After checking the specimens superficially and

by dissection I have not found clear evidence for specific separation. Superficially, most of the studied specimens are similar to the specimen illustrated on fig. 258b.

259 *Monopis weaverella* (Scott, 1858)

Tinea weaverella Scott, 1858: 5964.

Blabophanes semispilotella Strand, 1900: 225.

Monopis nigripilella Réal, 1989: 455, figs. 1–5.

Description. Wingspan 11–18 mm; head brush light yellow; labial palpus cream-colored, on outside, beside third segment, somewhat darker, second segment apically bristled; scape of antenna yellow, flagellum grey-brown; thorax and tegulae brown; forewing brown, on dorsum at beginning of fringe a pale patch, fringe pale, with a dark brown scale-line; costa with thin yellowish line from 1/2 to 3/4, followed by short thin stripes up to apex; between hyaline spot and costa more or less covered by pale scales; hindwing grey.

Male genitalia. Valva elliptic, broadest before or at middle, the brush of long setae on inside directed obliquely upwards, protruding beyond costal edge; phallus a little longer than saccus, straight, narrow, with two thin cornuti, apically slightly curved, versica with minute pointed thorns, anellus net-like, with numerous short pointed thorns.

Female genitalia. Posterior edge of sternite VIII with emargination, ostium lip and first part of ductus bursae more or less straight, more strongly sclerotized, corpus bursae with a band of thorn-like signa.

Variation. Some specimens with light pale, nearly white head brush; some specimens dark brown, costa and dorsum with a line of minute cream-colored dots (see fig. 259b).

Similar species. See under *M. laevigella*.

Distribution. Nearly all Europe, no records from Portugal, on Balkan Peninsula only from Slovenia, Croatia and Greece, outside Europe known from Armenia and Russian Far East, in the Nearctic region recorded from Canada (Landry & Pohl, 2018).

Bionomics. Zagulajev (1960) quoted Scott (1858) and Bankes (1910) as having found adults in pine forest near ant-hills; he himself collected adults near Leningrad in such habitat, he therefore proposed that larvae live in ant-hills. Petersen (1963) quoted Woodroffe (1953) as having found larvae in nests of *Corvus monedula* (Western Jackdaw) and in a dovecot, after Viette (1957) larvae living in birds' nests, after Buszko & Pałka (1992) in owl pellets (*Asio otus, Bubo bubo*). Mutanen (pers. comm.) considers these records to be wrong. In Finland this species has never been bred from birds' nests. It is often abundant in forests with plenty of anthills, and an ant association may be true, although it is not confirmed.

260 *Monopis neglecta* Šumpich & Liška, 2011

Monopis neglecta Šumpich & Liška, in Šumpich, 2011: 57, 58: figs. 1–8, 391: figs. 1–8.

Description. Wingspan 10–15 mm (males always smaller than females); head brush light yellow; labial palpus cream-colored, on outside with few darker scales, second segment apically bristled; scape of

antenna light yellow, flagellum greybrown; thorax and tegulae dark brown, thorax apically with minute yellow dot; forewing dark brown, fresh specimens with metallic tinge; on dorsum at beginning of fringe a small yellowish patch, costa from base to apex with some very short thin yellowish stripes, costa in the middle with thin yellowish line; the area between hyaline spot and costa with few scattered pale scales, fringe with dark scale-line; hindwing brown grey.

MALE GENITALIA. Quite similar to *M. weaverella*, the only difference seems to be, that the brush of long setae on inside the valva does not or only slightly protrudes beyond costal edge.

FEMALE GENITALIA. Not distinguishable from *M. weaverella*, the somewhat narrower signa (see fig. 260) may depend upon preparation.

VARIATION. Some specimens with only few or almost no pale scales between hyaline spot and costa (see fig. 260b), labial palpus sometimes with some darker scales on outside.

SIMILAR SPECIES. Closely similar to *M. weaverella*, superficially more or less distinguishable by the light coloration on the outside of labial palpus and by only few or no pale scales between hyaline spot and costa. Fresh specimens have a somewhat metallic tinge. Genital structures not clearly distinguishable from *M. weaverella*.

DISTRIBUTION. Hitherto known, according to the original description, from Central Europe (Czech Republic, Slovakia, Hungary, Austria, Slovenia and northern Italy). Outside Europe recorded from Iran.

New record. Iran, 1♂, Mazandaran prov., 10km S Galugah, 550m, 29.–30.v.2006, leg. Hajek & Chvojka, NMPC.

BIONOMICS. Larval pabulum unknown.

REMARKS. Only the fact that the DNA barcodes show clear differences to *M. weaverella* (Huemer, pers. comm.) leads me to regard *M. neglecta* as a valid species.

261 *Monopis spilotella* (Tengström, 1848)

Tinea spilotella Tengström, 1848: 109.

Tinea biflavimaculella Clemens, 1859: 257.

DESCRIPTION. Wingspan 14–20 mm; head brush light yellowish, laterally somewhat darker; labial palpus pale yellowish, on outside with some darker scales, second segment bristled; scape of antenna colored as head brush, with pecten, flagellum grey-brown; thorax and tegulae dark brown, tip of thorax cream-colored; forewing dark brown, with a cream-colored pattern: from costa to hyaline spot a triangular patch, before apex on costa three minute stripes, another rounded patch at dorsum at beginning of fringe, fringe with dark brown scale-line; the dark brown area partly overlaid with metallic shining scales; hindwing shiny grey.

MALE GENITALIA. Valva spoon-shaped, basal third parallelsided, then enlarged to rounded apex; on inside along apical edge some strongly sclerotized needle-like bristles; phallus somewhat shorter than saccus, basally rounded, narrower to blunt apex, vesica with numerous thin spiculae and with one thin cornutus, anellus net-like, covered with numerous short pointed thorns.

FEMALE GENITALIA. Apical edge of sternite VIII in the middle with cup-like emargination, ostium lip somewhat

funnel-shaped, with strongly sclerotized edges; corpus bursae with a band of thin thorns, basally rounded, with pointed tip.

Variation. Some specimens on forewing before apex with somewhat larger stripes (the number varies between right and left wing!), additional on termen two small cream-colored patches (see fig. 261b).

Similar species. Superficially clearly distinguishable from the preceding three species by the characteristic pattern on forewing; in male genitalia characterized by the spoon-shaped valva, in female genitalia characterized by the sclerotized ostium lip.

Distribution. Scandinavia, the Baltic countries, European part of Russia, outside Europe known through Siberia, Russian Far East, Mongolia and China; Nearctic Region (U.S.A.; Canada). Species shows a boreal distribution across the Holarctic Region.

Bionomics. Larvae feed in birds' nests (*Passer domesticus*), in resting places of bats, in old hymenopteran (*Paravespula germanica*, *P. vulgaris*, *Formica* sp.) nests (Zagulajev, 1981). Itämies (1982) found larvae in nest of *Somateria mollissima* (Common Eider). In Finland (Mutanen, pers. comm.) this species never comes from cavity-bird nests, although it is the second most common species of *Monopis* in Finland.

262 *Monopis burmanni* Petersen, 1979

Monopis burmanni Petersen, 1979: 35, figs. 1–6.

Monopis bisonella Šumpich, 2011: 85, figs. 1–4.

Description. Wingspan 11–14 mm; head brush golden yellow; labial palpus cream-colored, second segment bristled; scape and flagellum of antenna on underside lighter than on upperside; thorax and tegulae dark brown; forewing dark brown, the hyaline spot covered with white scales, a white patch on dorsum at beginning of fringe, prolonged to fringe, a few minute pale scales between hyaline spot and costa and before apex; hindwing dark brown.

Male genitalia. Valva emarginate at base between apodeme and ventral edge , from apodeme a lanceolate prolongation (transtilla?), more strongly sclerotized; first third of ventral edge with longitudinal rod-shaped sclerotizations, the first third of valva broader than the apical part, on inside with a brush of long setae; phallus a little longer than saccus, slightly curved, with small thin cornuti, vesica with minute sclerotizations, anellus net-like, with minute sclerotized thorns.

Female genitalia. Sternite VIII with cup-shaped emargination in the middle of posterior margin, the posterior half of sternite covered with minute strongly sclerotized thorns; first part of ductus bursae strongly sclerotized, corpus bursae with numerous (more than 40) narrow signa, one edge more or less serrate.

Variation. No variability has been observed in the few known specimens.

Similar species. Superficially somewhat similar to *M. neglecta*, *M. weaverella* and *M. luteocostalis*, but distinguished by the hyaline spot completely covered with white scales; in male genitalia the shape of valva distinguishes it from these three species. In female genitalia the shape of sternite VIII and the shape of signa are characteristic.

DISTRIBUTION. Known only from few locations: Austria (Northern Tirol: type locality; Habeler, 2006; Huemer, 2009; Kurz *et al.*, 2010), Poland (Bialowieza: type locality of *M. bisonella*), Russia: Siberia; Burjatia (Gaedike, 2006).

BIONOMICS. Larval pabulum unknown, adults have been collected between the end of May and July.

REMARKS. *M. bisonella* was synonymized by Gaedike (2011b). The known locations without any doubt do not represent the full distribution of this species. The biotope at the location of part of types in Northern Tirol: Innsbruck was destroyed by road construction (Petersen, 1979).

263 *Monopis luteocostalis* Gaedike, 2006

Monopis luteocostalis Gaedike, 2006: 224, figs. 11–13.

DESCRIPTION. Wingspan 11–16 mm; head brush golden yellow; labial palpus on inside cream-colored, on outside dark grey, second segment bristled; scape of antenna with pecten, the entire antenna dark grey to black; thorax and tegulae with same coloration; forewing dark grey to black, the hyaline spot completely covered by greyish scales; costa from 1/2 nearly to apex with yellow margin, a short yellow stripe on dorsum at beginning of fringe, prolonged to the basal part of fringe; hindwing grey.

MALE GENITALIA. Saccus apically with long narrow juxta; valva at dorsal and ventral edge concave in inner half, enlarged in outer half to rounded apex, transtilla connected basally with the apodeme, longer than width of valva; phallus nearly two times longer than valva, straight, vesica with numerous thin strongly sclerotized thorns.

FEMALE GENITALIA. Sternite VIII with shield-like sclerotization, posterior margin with cup-shaped emargination, laterally rounded, the area in the middle covered by minute strongly sclerotized thorns, ostium lip at beginning of ductus bursae narrower than the other part of ductus, strongly sclerotized laterally; ductus with minute thorns, corpus bursae with a band of numerous thin long pointed signa.

VARIATION. Sometimes the yellow margin on costa shorter.

SIMILAR SPECIES. The hyaline spot, completely covered by greyish scales and the yellow margin on costa are characteristic of the species and clearly distinguish it from *M. burmanni*. Additional differences see under *M. burmanni*.

DISTRIBUTION. Europe: East European Russia (S-Ural: Gaedike & Šumpich, 2017), outside Europe known from Siberia (described from env. of Irkutsk) and Altai Republic (Kash-Agach district: Gaedike & Šumpich, 2017).

BIONOMICS. Larval pabulum unknown, adults have been collected in June and July.

264 *Monopis obviella* (Denis & Schiffermüller, 1775)

Tinea obviella Denis & Schiffermüller, 1775: 143.

Tinea splendella Denis & Schiffermüller, 1775: 320.

Tinea ferruginella Hübner, 1813: Abb. 348, nec Thunberg, 1788, homonym.

Tinea ustella sensu Haworth, 1828: 565, misidentification.

Description. Wingspan 8–14 mm; head brush golden yellow; labial palpus on inside and tip of third segment cream-colored, on outside darker, second segment laterally with some, apically with numerous bristles; scape of antenna with pecten, the entire antenna ventrally cream-colored, dorsally grey-brown; thorax yellow, laterally dark brown, tegulae dark brown; forewing dark brown with characteristic pattern: a yellow stripe on dorsum from base to beginning of fringe, the margin to disc slightly curved; on costa between 2/3 and apex some minute yellow dots; pale scales between hyaline spot and costa; hindwing dark grey.

Male genitalia. Saccus nearly two times longer than uncus-tegumen-valva complex, narrow; valva spoon-like, from narrow base with more or less straight costal edge and curved ventral edge to rounded apex, transtilla connected with apodeme, longer than the largest width of valva; phallus as long as saccus, straight, vesica with needle-shaped cornuti, anellus net-like, covered with numerous short strongly sclerotized thorns.

Female genitalia. Posterior margin of sternite VIII with cup-shaped emargination, area aroung ostium more strongly sclerotized, basally with transverse wrinkles, ductus bursae apically narrow, strongly sclerotized, enlarged below, with minute spiculae, corpus bursae with a band of short, pointed thorns, often with minute second thorn basally (see fig. 264a).

Variation. Some specimens with blacker coloration, the yellow parts (head brush, thorax, pattern on forewing) paler, costa from 1/2 to apex with several short pale stripes (see fig. 264b).

Similar species. Superficially similar to *M. crocicapitella*, differences are: the golden yellow coloration of head brush and yellow pattern on forewing and cream-colored antenna ventrally, while *M. crocicapitella* with cream-colored head brush and pattern on forewing and unicolorous grey-brown antenna. In male genitalia the very long saccus and the shape of valva, in female genitalia the shape of sternite VIII and the shape of signa distinguish *M. obviella* from *M. crocicapitella*.

Distribution. Nearly all Europe; outside Europe known from Turkey, the Caucasus region, and Iran.

Bionomics. The larvae have been found in birds' nests, in caves, feeding on wool, and on several vegetable substrates. Larva was described in detail by Hinton (1956).

265 *Monopis crocicapitella* (Clemens, 1859)

Tinea crocicapitella Clemens, 1859: 257.

Tinea amandatella Walker, 1863: 480.

Tinea hyalinella Staudinger, 1870: 229.

Tinea lombardica Hering, 1889: 295.

Blabophanes heringi Richardson, 1893: 14.

Blabophanes ptilophaga Enderlein, 1908: 481.

Monopis cecconii Turati, 1919: 137, pl. IV, fig. 52.

Monopis dobrogica Georgesco, 1964: 589, pls i–ii.

Description. Wingspan 12–18 mm; head brush cream-colored; labial palpus

cream-colored on inside and on the tip of third segment, on outside somewhat darker, second segment laterally with some, and apically with numerous bristles; scape of antenna with pecten, the entire antenna unicolorous grey-brown; tegulae dark brown, thorax cream-colored, below neck and laterally with some brown scales; forewing dark brown, dorsum from base to beginning of fringe with a cream-colored stripe; some pale scales between the hyaline spot and costa, the apical half of wing along costa with some short pale stripes, fringe cream-colored, with a dark brown scale-line along middle; hindwing shiny light grey.

Male genitalia. Saccus as long as uncus-tegumen-valva complex; valva long, parallel-sided, ventral edge apically oblique to rounded apex; phallus appr. 1.5 times longer than saccus, straight, with pointed tip, vesica with numerous needle-shaped cornuti, anellus net-like, covered with numerous small rounded thorns.

Female genitalia. Sternite VIII around ostium shield-shaped, more strongly sclerotized, apically with slight emargination, prolonged to strongly sclerotized apical part of ductus bursae, corpus bursae with a band of small pointed signa, basolaterally more or less serrate.

Variation. Some specimens with forewing overlaid with paler scales, mostly in apical half (see fig. 265b).

Similar species. See under *M. obviella*.

Distribution. Central and South Europe, Canary and Madeira Islands, northwards to the British Isles; outside Europe known from Morocco, Turkey, Caucasus: Azerbaijan, Japan, and Nearctic and Australian regions.

New record. Azerbaijan, 1♂, Lenkoran, Aurora, 8.viii.1987, leg. et coll. Ivinskis.

Bionomics. Larvae on clothes, in dried seeds and in other dried plant material, in bird nests, bat guano, bird droppings, animal corpses, wool and detritus. For more detailed information, see Hinton (1956), Robinson & Nielsen (1993), and Zagulajev (1981). Robinson (1980) and Byun *et al.* (2014) mentioned this species also as cave-dweller.

266 *Monopis imella* (Hübner, 1813)

Tinea imella Hübner, 1813: Abb. 347.

Monopis meleodes Meyrick, 1917: 84.

Monopis nitidella Zagulajev, 1960: 131, figs. 94–95.

Description. Wingspan 9–17 mm; head brush light yellow; labial palpus totally cream-colored, second segment bristled; underside of antenna cream-colored, upperside dark grey, scape without pecten; thorax and tegulae brown, tegulae with cream-colored tip, thorax below neck and apically cream-colored; forewing brown, costa from 1/4 to 3/4 with a narrow cream-colored margin; dorsum at beginning of fringe with an indication of lighter colored patch; the entire wing with scattered pale scales; hindwing light brown.

Male genitalia. Saccus as long as valva; valva mostly parallel-sided, ventral edge subapically oblique to rounded apex; phallus distinctly longer than valva, straight, with rounded tip, vesica with numerous very thin needle-like cornuti and some (mostly two) irregularly shaped tooth-like larger cornuti; anellus net-like

with numerous small triangular pointed thorns.

Female genitalia. Sternite VIII shield-like, anteriorly broad, narrower to posterior edge, posterior edge with deep emargination in the middle, between rounded bristled lobes, the entire area strongly sclerotized, in the middle covered with numerous minute pointed thorns; the beginning of ductus bursae contracted, with strongly sclerotized edges, then expanded; corpus bursae with a band of long thin needle-like signa.

Variation. Some specimens with paler head brush, forewing without scattered pale scales (fig. 266b); in some specimens the cream-colored margin on costa somewhat broader, a cream-colored band on dorsum from base to beginning of fringe, and wing from the end of cell nearly to apex overlaid with pale scales (fig. 266c); in some specimens forewing unicolored dark brown, only a shorter cream-colored margin at costa and several pale scales in the apical half of wing is visible (fig. 266d). In male genitalia the shape of valva somewhat variable (see figs. 266h–266l), the shape of cornuti is somewhat variable too and depends on the preparation (see figs. 266a–266g). In female genitalia the shape of sternite VIII varies (see figs. 266a–266c).

Similar species. Superficially similar to *M. nigricantella*, but forewing not so narrow, scape of antenna without pecten, the coloration of forewing lighter and the hyaline spot larger. In male genitalia saccus as long as valva and valva parallel-sided, while *M. nigricantella* with distinctly longer saccus and valva not parallel-sided, clear differences are seen in shape and size of phallus and the cornuti. Female genitalia with shield-shaped tergite VIII and longer needle-like signa, while *M. nigricantella* with narrow tergite VIII and signa basally with additional teeth.

Distribution. Nearly entire Palaearctic Region.

Bionomics. Larvae in nests of birds, living on owl pellets (studied material), several vegetable and animal substrates. A compilation of the habitats of the larvae is given by Zagulajev (1960; 1981).

Remarks. Superficially and in the genitalia structure, some variability is seen. I believe that this is not unusual with species with such a large range of distribution. Some specimens from Russian Central Asia and from Mongolia are somewhat different and it could be that they belong to another species. Further studies are needed to solve this problem. My colleague Marko Mutanen informed me that exceptionally large intraspecific divergence in the DNA barcode sequences is found in this species. These specimens must be studied in the future for morphological differences.

267 *Monopis nigricantella* (Millière, 1872)

Tinea nigricantella Millière, 1872: 172.

Description. Wingspan 10–18 mm; head brush creamy yellow, in the neck more yellow; labial palpus on inside cream-colored, on outside overlaid with some darker scales, second segment bristled; underside of antenna cream-colored, upperside dark grey, scape with pecten; tegulae dark brown, with yellow tip, thorax dark brown, yellow below neck; forewing slender, dark blackish brown, the hyaline spot minute,

costa in the second half with thin yellow margin, the beginning of fringe yellow on ventral edge, some individual minute pale scales on wing; hindwing shiny grey.

Male genitalia. Saccus distinctly longer than valva, costal edge of valva at ½ slightly convex, ventral edge from base continuously rounded to apex; phallus a little longer than saccus, slender, vesica with minute thin needle-like cornuti and two more or less triangular strongly sclerotized larger cornuti, anellus net-like, with numerous needle-like thorns.

Female genitalia. Sternite VIII narrow, prolonged, with rounded bristled apex, apical half in the middle with numerous minute thorns, lateral margins thin folded and strongly sclerotized; corpus bursae with a band of needle-like signa, basally with additional teeth.

Variation. Some specimens with paler head brush, the coloration of forewing lighter grey-brown, the costal margin lighter yellow, somewhat broader, nearly the entire fringe paler yellowish, some minute pale scales on wing (see fig. 267b). The shape of the two larger cornuti is somewhat variable (see fig. 267a).

Similar species. See preceding species.

Distribution. Azores (Viera, 1997) but not listed from the Azores by Vieira and Karsholt (2010: 243), Madeira (Gaedike & Karsholt, 2001), Canary Islands, Iberian Peninsula, Malta (Sammut, 2000), France, Italy (mainland and Sardinia), Bulgaria, outside Europe from North Africa (Morocco, Tunisia, Algeria).

New record. Bulgaria. 1♂, SE Bulgaria, Strandia, 150m, Zvezdets, Kovach, 17.–15. vi.2014, leg. H. Roweck & N. Savenkov, coll. Roweck.

Bionomics. Larval pabulum unknown, adults have been collected in Iberian Peninsula from the end of April to October, on Canary Islands from the end of February to December, on Madeira from the end of March to October, clearly in two generations.

Remarks. The record for Germany (Petersen, 1968) belongs to *M. imella* (Biesenbaum; Schulten, pers. comm.), the record for Romania (Capuşe, 1968) needs re-examination. It could be also a misidentification of *M. imella.*

268 *Monopis henderickxi* Gaedike & Karsholt, 2001

Monopis henderickxi Gaedike & Karsholt, 2001: 177, figs. 18–19, 32, 92–96.

Description. Wingspan 8–10 mm; head brush yellow-brown; labial palpus pale whitish, second segment bristled; antenna as long as forewing, dark brown, scape with pecten; thorax and tegulae dark brown; forewing dark brown, with a pattern of white streaks and dots: on costa from base to 3/4 some (7–9) thin short streaks, oblique towards apex, the streaks in the first half more or less irregular, sometimes reaching close to the short white lines on dorsum, the streak at 1/2 reaches cell, nearly connected with a white patch at beginning of fringe; some minute white dots at base of fringe and around apex; the hyaline dot overlaid with scales; hindwing brown.

Male genitalia. Gnathos arms apically pointed, hook-shaped upwards; saccus a little longer than valva, narrow; valva parallel-sided, ventral edge at 3/4 narrower

to rounded apex, phallus appr. 1.3 times longer than saccus, straight, vesica with numerous minute spines.

Female genitalia. Ostium broadly cup-shaped, with fine-grained structure; ductus bursae in the first third more strongly sclerotized; corpus bursae with a band of small pointed, sometimes forked signa.

Variation. Some specimens with paler colored head brush; the pattern of forewing more extended: the streak at 1/2 on costa connected with the patch at beginning of fringe, forming a chevron, the streaks in the basal half prolonged nearly to dorsum, the dots around apex and at base of fringe prolonged to short stripes (see fig. 268b).

Similar species. The white pattern on forewing distinguish the species from the other members of the genus.

Distribution. Only known only from the location of the type series: Madeira Island.

Bionomics. Larvae live in more or less cylindrical cases and seem to be lichenophagous. The case is also the cocoon for the pupae. For more details, see Gaedike & Karsholt (2001).

In the past there has been confusion concerning the synonymy of the following two species. While Petersen (1963) synonymizes *M. straminella* with *M. christophi*, Robinson (1980) regards *M. christophi* and *M. orghidani* as synonymous with *M. pallidella,* and *M. straminella* as a separate species. Zagulajev (1975) erroneously synonymized *M. christophi* with *M. pallidella*. After studying of a lot of specimens I follow the opinion of Petersen (1963).

269 *Monopis christophi* Petersen, 1957

Monopis christophi Petersen, 1957a: 170, fig. 144.

Monopis straminella Zagulajev, 1958: 1671, figs. 4–6.

Description. Wingspan 10–14 mm; head brush pale yellowish; labial palpus pale yellowish, second segment with numerous pale bristles; scape of antenna with pecten, entire antenna shiny whitish, nearly as long as forewing; thorax, tegulae and forewing light cream-colored, shiny, forewing without any pattern, hyaline dot invisible; hindwing white.

Male genitalia. Saccus a little longer than valva, narrow; valva lanceolate, from base narrowed to rounded apex; phallus as long as saccus, slightly curved, with pointed apex, vesica with numerous minute sclerotizations.

Female genitalia. Sternite VIII with cup-shaped emargination on posterior margin, ostium narrow funnel-shaped, first part of ductus bursae strongly sclerotized.

Variation. No variation is seen superficially. In male genitalia the shape of valva is somewhat variable (see figs. 269a–269c).

Similar species. Superficially very similar to *M. pallidella*, distinguished by the pale yellowish head brush, the second segment of labial palpus with numerous bristles and the invisible hyaline spot. In male genitalia the shape of valva and phallus are distinguishing characters. In female genitalia the differences are not clear, only the sclerotization of the ductus bursae is less strong than in *M. pallidella*.

DISTRIBUTION. South European Russia (Anikin *et al.*, 2000; studied material), European part of Kazakhstan, outside Europe from Turkey through Iran, Afghanistan, Kirgizstan, Siberia to China.

New record. Kazakhstan, 1♂, 1 specimen without abdomen, European part: Rynkum sandy steppe NW Kandagash loc., 5.–17.vi.1999, leg. V. Karalius & J. Miatleuski, coll. Ivinskis.

BIONOMICS. Larval pabulum unknown.

REMARKS. The record from Italy: Sicily (1♂, "Sizilien, leg. Kalchberg": examined specimen) is very surprising and is possibly a mislabelling.

270 *Monopis pallidella* Zagulajev, 1955

Monopis (*Blabophanes*) *pallidella* Zagulajev, 1955: 284, fig. 2.

Monopis orghidani Georgesco, 1964: 590, pls iii–vi.

DESCRIPTION. Wingspan 10–15 mm; head brush dark grey, lighter below palpi; labial palpus pale, second segment apically with bristle; antenna as long as forewing, scape with pecten, entire antenna pale grey; thorax, tegulae and forewing shiny grey, forewing without any pattern, hyaline spot partly visible; hindwing with same coloration.

MALE GENITALIA. Saccus a little shorter than valva, narrow; valva more or less parallel-sided, costal edge slightly concave, the first half with more strongly sclerotized margin, ventral edge slightly convex, with rounded apex; phallus somewhat longer than valva, straight, the basal 3/4 more strongly sclerotized than the narrower apical quarter, apex truncated.

FEMALE GENITALIA. Sternite VIII with flat cup-shaped emargination on posterior margin, ostium and first part of ductus bursae strongly sclerotized, with transverse wrinkles.

VARIATION. No variation is shown superficially. In male genitalia the shape of valva is somewhat variable (see figs. 270a–270c).

SIMILAR SPECIES. See under the preceding species.

DISTRIBUTION. In Europe known from Romania, Italy, European Russia, outside Europe from Georgia through Central Asia, Siberia, Mongolia to China.

New record. Italy: Tuscany, Montaione, 7.-10.vii.2014, leg. B. Wikström, SDEI.

BIONOMICS. Larva on bat guano (Georgesco, 1964). Robinson (1980) mentioned this species also as cave-dweller. A compilation of the published results concerning attraction of pheromones is given by El-Sayed (2012).

271 *Monopis barbarosi* (Koçak, 1981)

Reisserita barbarosi Koçak, 1981b: 111.

Tinea irrorella Wollaston, 1858: 120, nec Hübner, 1796, homonym.

DESCRIPTION. Wingspan 16 mm. Head orange-brown; antenna as long as forewing, brown; thorax yellowish; tegulae brown. Forewing brownish, with small spots of whitish yellow scales scattered over the wing; no visible hyaline spot. Hindwing unicolorous light grey-brown, with a slight golden shade.

Male genitalia. Unknown.

Female genitalia. Apophyses not forked, very long; ostium with two rounded corners bearing setae; the first part of ductus bursae with longitudinal folds; in the bursa a lot (appr. 20) of small mostly triangular spines.

Variation. Only known from the holotype.

Similar species. The relatively large size, the long antenna and the brown forewing without a hyaline spot, but with irrorate whitish yellow scales separate *M. barbarosi* from other members of the genus.

Distribution. Known only from the holotype collected before 1858 from Madeira Island.

Bionomics. Early stages unknown. Wollaston gave no details about where or when he collected the holotype.

Remarks. Koçak (1981b) erroneously placed this species into the genus *Reisserita* (probably based on Petersen (1957a: 114)). Without doubt, it belongs to the genus *Monopis*; the evidence for this opinion is the presence of a (scale covered) hyaline spot in the forewing and the structure of the genitalia. *M. barbarosi* differs from other Palaearctic species of *Monopis*, and it also does not belong to any New World species of this genus, including *M. irrorella* Dietz, 1905, a synonym of *M. marginistrigella* (Chambers, 1873) (D. R. Davis, *in litt.*). It is atypical for *Monopis* in having broader forewings with unmodified venation, with the exception of M3 and CuA1 being connate (G. Robinson, *in litt.*).

272 *Monopis fenestratella* (Heyden, 1863)

Tinea fenestratella Heyden, 1863: 342.

Description. Wingspan 9–15 mm; head brush greyish cream-colored; labial palpus light cream-colored, second segment bristled; scape of antenna light cream-colored, flagellum darker; thorax and tegulae grey-brown, tegulae apically lighter; forewing dark grey-brown, the hyaline spot large; with a more or less triangular greyish cream patch based on costa from middle nearly to apex, and extending inwards to end of hyaline spot; a band with same coloration on dorsum from base to beginning of fringe, ending in a larger patch, nearly reaching the hyaline dot and the triangular patch; fringe with dark scale line in the middle; hindwing grey.

Male genitalia. Uncus and gnathos arms narrow, longer than usual in this genus; saccus as long as valva; valva with long apodeme, parallel-sided, with rounded apex; phallus two times longer than saccus, straight, apically with more or less pointed tip, vesica with numerous thin pointed thorns.

Female genitalia. Sternite VIII at posterior margin and ostium with deep V-shaped slit, ostium, beginning of ductus bursae strongly sclerotized with numerous transverse wrinkles; in corpus bursae some small signa with elongate rounded base and short needle-like thorns.

Variation. No variation has been observed.

Similar species. Superficially clearly distinguishable from all other members of the genus by the large hyaline spot and the pattern on forewing. In male genitalia characterized by the narrow and long uncus and gnathos arms, female genitalia characterized by the deep slit in ostium and by the shape of signa.

Distribution. Central Europe, north to Great Britain, Denmark, Finland, and

the Baltic countries, southwards through Romania to Ukraine, outside Europe from Siberia.

BIONOMICS. Larvae live in nests of birds (Jalava, 1980: *Strix uralensis*; Pelham-Clinton, 1985: *Falco tinnunculus*; Jaworski *et al.* 2012 and Dobrzanski & Jaworski, 2016: *Strix aluco*; Mutanen (pers. comm.): owl nests), in nests of *Vespa crabro* (Rapp, 1936; Zagulajev, 1981), in decaying wood, in *Daedalea quercina* and in dead ornamental plants (Schütze, 1931; examined specimens). Larvae from *Daedalea quercina* or from other fungi may have been feeding on skins or remains of arthropods, which are often abundant in bracket fungi.

273 *Monopis monachella* (Hübner, 1796)

Tinea monachella Hübner, 1796: 65.

Monopis monacha Zagulajev, 1972b: 352, figs. 19–20.

DESCRIPTION. Wingspan 13–17 mm; head brush white, below palpi a row of brown scales; labial palpus on outside and on inside ventrally dark brown, on the upper inside white, tip of third segment cream-colored, second segment apically bristled; scape of antenna white, with pecten, flagellum brown-grey; thorax and tegulae white, tegulae basally brown; forewing dark brown, on costa between 1/3 and 3/4 a white kidney-shaped area, covering the hyaline spot; the beginning of fringe at dorsum with a small whitish spot; the dark brown area covered with blackish iridescent tufts of raised scales; hindwing grey.

MALE GENITALIA. Gnathos arms with very broad basal part, apically pointed; saccus nearly two times longer than valva, straight, thin; valva parallel-sided, costal edge with more strongly sclerotized margin, apically rounded; phallus as long as saccus, straight, vesica with numerous thin pointed cornuti and minute pointed thorns.

FEMALE GENITALIA. Sternite VIII at posterior margin with shallow emargination, ostium funnel-shaped, first part of ductus bursae with strongly sclerotized transverse wrinkles, corpus bursae with a band of small thin pointed signa.

VARIATION. No variability is seen.

SIMILAR SPECIES. The white kidney-shaped area on forewing distinguish the species from the other European members of the genus.

DISTRIBUTION. Entire Europe (no known records from Portugal (Corley, 2015)), outside Europe from Turkey through Caucasus region, Central Asia, Siberia to China, and Russian Far East; Nearctic region.

BIONOMICS. Larvae feed in nests of birds and mammals and on various animal material (Petersen, 1963; Viette, 1957). A compilation of the published results concerning attraction of pheromones is given by El-Sayed (2012).

Not attributed to subfamily

Pelecystola Meyrick, 1920

Pelecystola Meyrick, 1920b: 103.

Type species: *Pelecystola decorata* Meyrick, 1920.

Zularcha Meyrick, 1937a: 75.

Type species: *Zularcha melancharis* Meyrick, 1937.

Neurozestis Meyrick, 1938: 25.

Type species: *Neurozestis polysticha* Meyrick, 1938.

This genus is, according to Robinson (2009), not attributed to any subfamily. There are six known species from Holarctic, Afrotropical and Oriental Regions. From the Palaearctic region two species are known, one from Far East and one from Europe.

274 *Pelecystola fraudulentella* (Zeller, 1852)

Tinea fraudulentella Zeller, 1852: 110.

Description. (according to Lindeborg & Bengtsson, 2009): Wingspan 16.5 (male lectotype)–18 (Swedish female) mm; head ochreous yellow, antenna ciliate, about half of forewing length, scape ochreous yellow, flagellum dark brown; labial palpus short, fuscous on outer side, yellowish ochreous on inner side, on outer side with few small bristles sticking out from the scales; legs on outer side fuscous, on inner side ochreous, tarsal segments with dark ring; thorax dark brown, tegulae on posterior half ochreous; forewing dark brown, with purple gloss in some parts, also on the underside; in fold at 1/3 to base an ochreous spot edged outwardly by a tuft of erect, black scales, a few such scales also inwardly, a similar spot at end of disc, costally and dorsally margined by black, erect scales; at apex a small ochreous spot and some further spots inwardly creating a reticulate pattern, small ochreous spots also at mid-termen and tornus; fringes dark brown, with ciliary line; from pale spot at discal end a distinct purple streak extending to termen, this pattern consisting of scales deviating from rest of the wing. Hindwing as broad as forewing, fuscous with purplish shine, basally paler, fringes short, dark greyish with blackish brown base.

Male genitalia. Uncus with two lobes, gnathos a heart-shaped field of numerous small spines; valva complex: an anterior, digitate extension with small lateral beak at tip; basal half of valva abruptly widened with spinose area terminally; at base of basal extension a third outgrowth with ring of a comb of setae at tip and close to this a sclerotized extension with tips bent backwards; vinculum broad, without saccus; phallus tubular, without cornuti.

Female genitalia. Segment VIII a rectangular plate with shallow incurvation and three or four stout bristles on each side of this; sterigma conical with base extended laterally and fused with apophyses anteriores; ostium at top of sterigma; corpus bursae with large, strongly sclerotised, V-shaped signum, each shank inwardly serrated.

Variation. No variation was seen between the few known specimens.

Similar species. The ciliate antenna and the structure of male genitalia distinguish the species from other members of the family.

Distribution. Hitherto known only from Slovenia (type locality), Czech Republic Northern Bohemia, first half of 20th century (Laštůvka, pers. comm.), Slovakia: Lehota pod Vtáčnikom (Gaedike & Tokár, 2010; Tokár *et al.*, 2010), Hungary, Bulgaria, France (Corsica), Sweden: Småland: Nybro, Bäckebo (Svensson, 2008;

Lindeborg, 2008; Lindeborg & Bengtsson, 2009; Bengtsson, 2016).

New records. Bulgaria, 2♂, 1♀, Southern Pirin, Popovi Livadi, 10km SW, 19.vii.2013, leg. et coll. Junnilainen; France: Corsica (Nel & Bassi, 2018).

BIONOMICS. The habitat requirements ofthis species are not known. The moth probably occurs in old deciduous or mixed forests. The larva may feed in the same way as many other species in the family, viz. on fungi, rotten wood and in bird's nests (Lindeborg & Bengtsson, 2009).

REMARKS. The present records probably do not reflect the real distribution of this species. More detailed investigations of suitable locations, rearing the larvae from rotten wood or fungi, or using pheromones may fill up gaps in distribution.

Hieroxestinae

Hieroxestides Meyrick, 1893: 479.

Type genus: *Hieroxestis* Meyrick, 1893.

Dendroneurinae Walsingham, 1892: 509.

Type genus: *Dendroneura* Walsingham, 1892.

Oenophilidae [sic] Spuler, 1899: 33.

Type genus: *Oinophila* Stephens, 1848.

The characterization of the genera of this subfamily follows Robinson & Tuck (1997), in which recent knowledge of this subfamily was summarized, based on the papers of Davis (1978), Davis & Peña (1990) on North American species, Zimmermann (1978) on the Hawaiian species, Clarke (1971, 1986) on the species of Rapa Island and the Marquesas Islands, Robinson & Nielsen (1993) on the Australian species, and Petersen (1986b) on the Palaearctic *Amphixystis* (under the synonymous name *Gephyristis*).

Opogona Zeller, 1854

Opogona Zeller, 1854: 504.

Type species: *Opogona dimidiatella* Zeller, 1854.

Lozostoma Stainton, 1859: 124.

Type species: *Lozostoma flavofasciata* Stainton, 1859b.

Conchyliospila Wallengren, 1861: 387.

Type species: *Conchyliospila simoniella* Wallengren, 1861.

Cachura Walker, 1864: 918.

Type species: *Cachura objectella* Walker, 1864b.

Dendroneura Walsingham, 1892: 509.

Type species: *Dendroneura praestans* Walsingham, 1892

Hieroxestis Meyrick, 1893: 482, 567

Type species *Hieroxestis omoscopa* Meyrick, 1893.

Exala Meyrick, 1912: 24.

Type species: *Gracilaria* [sic] *strassenella* Enderlein, 1903.

DESCRIPTION. Small or medium-sized species with broad, shiny appressed scales on head, head distinctly triangular in lateral view with a pronounced "brow-ridge"; labial palpi splayed laterally at nearly 180°.

MALE GENITALIA. Uncus lobes widely separate, strongly spinose; gnathos absent; vinculum and tegumen a transverse ring; valva simple, always with medial longitudinal emargination of varying depth, but never extending much beyond one-half length of valva; juxta free, surrounding

base of phallus, sometimes spinose; phallus slender, tubular.

Female genitalia. Oviscapt slender, elongate, two-thirds length of abdomen, posterior apophyses as long as abdomen, two times length of anterior apophyses; sternite VIII with deep posterior medial emargination, ostium small, signum bobsled-shaped.

Distribution. Worldwide, predominantly tropical and subtropical. From around 200 species, four species are known in the Palaearctic region, two of them are introduced in Europe.

Bionomics. Larvae are detritophagous, feeding typically on dead or drying plant material with or without fungal component. Several species have become pests, attacking stored tubers and feeding occasionally on living plant material (sugar cane) adjacent to decaying material. For more details on the life history of the genus see Davis (1978).

275 *Opogona sacchari* (Bojer, 1856)

Alucita sacchari Bojer, 1856: 21, pl. V, figs. 1–10.

Tinea subcervinella Walker, 1863: 477.

Gelechia sanctaehelenae Walker, 1875: 192.

Gelechia ligniferella Walker, 1875: 192.

Laverna plumipes Butler, 1876: 409.

Description. Wingspan 17–29 mm; head from neck to insertion of antennae dark grey, apical half nearly white; labial palpus on inside white, on outside somewhat darker, second segment without bristles; antenna shiny cream-colored; thorax and tegulae dark brown-grey; forewing ground colour dark brown-grey, overlaid with numerous cream-colored scales; the ground colour is visible as smaller patches at base, on dorsum near base, after end of cell and at apex; hindwing cream-colored, males with dorsal hair-pencil on hindwing.

Male genitalia. Sternite VIII with cup-shaped emargination in apical margin; uncus lobes oval, posterior edge with some rows of strongly sclerotized pointed thorns; saccus basally broad, short, narrower to truncated apex, valva as long as uncus-tegumen-saccus complex, the longitudinal emargination V-shaped, ventral arm of valva apically with strongly sclerotized downwards directed hook, basal margin longitudinally folded; costal arm nearly 1.3 times longer than ventral arm, costal edge curved, apical half oval; phallus as long as saccus, from broad base narrower to pointed tip.

Female genitalia. Sternite VIII connected with ventral arms of anterior apophyses, deeply U-shaped; corpus bursae in the first part with numerous minute sclerotizations, signum very large, appr. 1.5 times longer than an abdominal segment.

Variation. No variation was seen.

Similar species. Similar to *O. omoscopa*, but larger, the coloration of forewing lighter, without any yellowish spot; second segment of labial palpus without bristles. In male genitalia uncus lobes at posterior edge with thorns, while *O. omoscopa* with laterally thorns, saccus apically truncated instead of rounded saccus in *O. omoscopa*, valva with hook-shaped tip on costal arm, while *O. omoscopa* with straight pointed tip. In female genitalia sternite VIII forming two narrow prolongated parts, while

O. omoscopa with two triangular plates, the emargination is very deep, as long as the prolongations and signum longer than an abdominal segment, while *O. omoscopa* with short emargination and a smaller signum (as long as an abdominal segment).

DISTRIBUTION. Probably originating from St. Helena and from there transported around the globe with maritime trade (Robinson & Tuck, 1997). According to Lopez-Vaamonde *et al.* (2010) native from C. Africa, first record in Europe on Madeira in 1910. *O. sacchari* is primarily a species of oceanic islands (the type localities of all five names listed above are Mauritius, St. Helena and Rodriguez). Other island records include Cape Verde Islands, Canary Islands, Azores and Bermuda. It is also known from coastal areas of Africa, South and Central America, Florida, and from several places in Europe (Davis & Penã, 1990; Pentscheva, 2007; Meyer, 2008). Whereas it may survive outdoors in certain places in southern Europe, e.g. South France (Varenne et al. 2004), its occurrence in northern Europe is exclusively connected with greenhouses and other heated, humid localities.

BIONOMICS. The larvae feed on a number of different plants and trees, and can be a serious pest on several crops, including banana, maize, potato, sweet potato and sugar cane. They can feed on nearly all parts of the banana. (Davis & Penã, 1990). In Japan larvae were found on a potted plant of *Dracaena fragrans* (Mano; Asahi & Mano 2009). In Madeira *O. sacchari* is spread all over the banana plantations. Other hosts in Madeira include bird of paradise flower (*Strelitzia reginae*) and sugar cane (*Saccharum officinarum*). In Switzerland larvae were found inside a building on a bonsai Ficus (*Ficus microcarpa compacta*), originating from a dealer in the Netherlands, who sells lots of plants from the mediterranean area including banana trees. (Bernard Landry, pers. comm.), in Hungary the species is occasionally introduced with new importations of *Dracaena*, *Yucca* etc. (Fazekas (ed.), 2016), in Switzerland on *Dracaena draco* (Sauter & Whitebread, 2005). A list of hitherto known plants is given by Lopez-Vaamonde *et al.*, 2010. The adult is found throughout the year and comes to light. Larva and pupa are described and illustrated by Davis & Penã (1990) and by Ramel *et al.* (2009). A compilation of the published results concerning attraction of pheromones is given by El-Sayed (2012).

REMARKS. The name "*sacchari*" was mentioned for the first time on p. 21 (legends of figures 1–10 of plate V) in the paper of Bojer, a detailed description was given on pages 10ff. The species is an alien species in Europe (according to Lopez-Vaamonde *et al.*, 2010). In the joint paper (Gaedike & Karsholt, 2001) the male genitalia structure must be corrected: fig. 98 was called „aedeagus" [= phallus,], but it was a misinterpretation, the figure shows a structure still unknown for me, maybe an artefact.

276 *Opogona omoscopa* (Meyrick, 1893)

Hieroxestis omoscopa Meyrick, 1893: 567.

Gracilaria [sic] *strassenella* Enderlein, 1903: 251.

Opogona apicalis Swezey, 1909: 17, pl. III, figs. 4–5.

Hieroxestis praematura Meyrick, 1909: 26.

DESCRIPTION. Wingspan 15–22 mm; head from neck to insertion of antennae dark brown, apical half light cream-colored; labial palpus on inside cream-colored, on outside darker, second segment bristled; underside of antenna cream-colored, upperside of scape dark grey, of flagellum dark cream-colored; thorax and tegulae dark brown; forewing dark brown, a minute yellowish dot on dorsum near base, at beginning of fringe a larger yellowish dot: hindwing shiny grey, males with dorsal hair-pencil on hindwing.

MALE GENITALIA. Sternite VIII at apical margin with cup-shaped emargination, laterally with long bristles, uncus lobes more or less oval, the rows of strongly sclerotized pointed thorns more lateral; saccus as long as tegumen, apically rounded; valva with U-shaped longitudinal emargination, ventral arm apically with pointed, strongly sclerotized tip, costal arm narrow, apically rounded, costal margin lightly curved; phallus as long as saccus, thin, with pointed tip.

FEMALE GENITALIA. Sternite VIII connected with ventral arms of anterior apophyses, forming two more or less triangular plates, apically with U-shaped emargination, the lateral margins and ostium strongly sclerotized; corpus bursae in the first part with numerous minute semicircular sclerotizations, signum characteristically shaped, as long as an abdominal segment.

VARIATION. No variation has been observed.

SIMILAR SPECIES. See preceding species.

DISTRIBUTION. The species was described from Australia. According to Lopez-Vaamonde *et al.* (2010) it is native to Africa, first record in Europe on Madeira in 1923. Known from Australia, New Zealand, Hawaii, India, southern Africa, Malagassy Republic; western North America (Davis, 1978: 23). Also in the Canary Islands, Azores (Viera, 1997), southern Spain, France (mainland: Billi, 2009; and Corsica: Ramel, 2014), Italy (mainland; Sardinia), Great Britain (Money, 2009; Clark, 2010), the Channel Islands (Sterling, Lawlor & Costen, 2009), The Netherlands (Huisman *et al.*, 2013; Muus, 2015b) and Denmark (Karsholt & Nielsen, 2013; Buhl *et al.*, 1997). Occasionally introduced to greenhouses in northern Europe.

BIONOMICS. The larva feeds on decaying and rotten tissues of a large number of different plants or trees, for details see Davis (1978). In the same paper larva and pupa were described.

REMARKS. The species is an alien species in Europe (according to Lopez-Vaamonde *et al.*, 2010).

Wegneria Diakonoff, 1951

Wegneria Diakonoff, 1951: 131.

Type species: *Wegneria cavernicola* Diakonoff, 1951

DESCRIPTION. Small species (wingspan 9–13 mm); glossy purple-brown, head smooth-scaled, with a deep depression between the brow-ridge and the top of the head. According to Robinson & Tuck (1997) the genus is monophyletic based on some apomorphies: occipital suture absent; margin of compound eye indented to accommodate part of antennal socket and resting antenna; eye reduced, labial palpus without lateral bristles; anal tube in

male forming a "pseudo-uncus"; valva with scimitar-shaped basal processes, valva with complex folding and ridging.

MALE GENITALIA. Vinculum and tegumen a stout cylinder, with deep U-shaped anterior emargination dorsally and with similar but broader emargination ventrally, resembling a saddle; saccus rod-like; uncus lobes widely separated; without gnathos; subscaphium strongly developed and enveloping the anal tube in a "pseudo-uncus"; valva divided into rounded dorsal lobe and a ventral lobe that is itself shallowly divided and with complex folding and ridging to form a variety of blunt processes; phallus simple.

FEMALE GENITALIA. Oviscapt long, up to 0.75 length of abdomen, one-half length of anterior apophyses; sternite VIII shield-shaped, posterior margin with small U-shaped emargination; signum bobsled-shaped, similar to *Opogona*.

DISTRIBUTION. Old World, according to Robinson (2009) 16 species are known from Afrotropical and Oriental regions. One species is known from Palaearctic region.

BIONOMICS. The species have been reared from guano and vegetable detritus, four species are cave-dwelling and are all thought to feed on bat or swiftlet guano.

277 *Wegneria panchalcella* (Staudinger, 1871)

Opogona panchalcella Staudinger, 1871: 325.

Wegneria cavernicola Diakonoff, 1951: 134, figs. 1–7.

DESCRIPTION. Wingspan 9–10 mm; head shiny light brown; labial palpus on inside cream-colored, on outside darker; antenna as long as forewing, shiny cream-colored; thorax, tegulae and forewing shiny light brown, forewing without any pattern; hindwing light grey.

MALE GENITALIA. See description of the genus.

FEMALE GENITALIA. Sternite VIII shield-shaped, posteriorly narrowed to posterior margin with small emargination, the posterior area of sternite covered with numerous minute sclerotizations; ostium laterally stronger sclerotized; signum in lateral view bobsled-shaped, similar to the species of *Opogona*.

VARIATION. No variation has been observed.

SIMILAR SPECIES. Superficially characterized by the shiny coloration and small size, clearly distinguishing it from the *Opogona* species.

DISTRIBUTION. In Europe known from Spain: Canary Islands; Italy: Sicily; Macedonia; Greece; Cyprus (Barton, 2015); Bulgaria (E. van Nieukerken, pers. information); Russia (type location: Sarepta); Ukraine (Bidzilya *et al.*, 2003); Hungary (Tokár & Buschmann, 2012), outside Europe known from Turkey and Azerbaijan.

New record. Azerbaijan, 3 ♂, Lenkoran, Aurora, 5., 8.viii.1987, leg. et coll. Ivinskis.

BIONOMICS. Larvae were found in a cave on bat-guano in volcanic rock (Diakonoff, 1951 under the name *W. cavernicola*).

Oinophila Stephens, 1848

Oinophila Stephens, 1848: xli.

Type species: *Gracillaria v-flava* Haworth, 1828.

Oenophila Dunning & Pickard, 1859: 99 (unjustified emendation).

DESCRIPTION. Small species with slender wings; the head is smooth-scaled with erect scales in a line behind the brow-ridge and forming an epifrontal tuft in front and below the brow-ridge; forewings with a pattern of yellowish stripes.

MALE GENITALIA. Vinculum and tegumen a stout cylinder, concave anteriorly both dorsally and ventrally, saccus thin, uncus with basally separated lobes, apically fused, valva simple, phallus elongate, without cornuti.

FEMALE GENITALIA. Oviscapt long, reaching 0.75 of the length of abdomen, ventral arms of anterior apophyses strongly sclerotized, between them the circular ostium, signum bilobed.

DISTRIBUTION. Two species are known, distributed in the Palaearctic and Nearctic Regions, both are known from Europe.

BIONOMICS. Larvae are apparently detritophagous. For details see under the species.

REMARKS. Authorship and publication date of *Oenophila* was authenticated by Cowan (1971).

278 *Oinophila v-flava* (Haworth, 1828)

Gracillaria v-flava Haworth, 1828: 530.

Elachista flavofasciella Duponchel, 1845: 516.

Elachista vau-flava Heydenreich, 1851: No. 1028 (misspelling).

DESCRIPTION. Wingspan 7–10 mm; head greyish brown from neck to the line of erect light brown scales behind the brow-ridge, with appressed light cream-colored scales on brow-ridge and above palpi; labial palpus on outside light brown, on inside light cream-colored, second segment apically bristled; antenna somewhat longer than forewing; thorax and tegulae greyish brown; forewing with same coloration, with a light yellowish pattern: before 1/2 a stripe from costa to dorsum, obliquely directed apically, forming a chevron; a second broader stripe from beginning of fringe on dorsum obliquely to costa; both stripes connected in the middle in cell, forming an H; fringe around apex basally yellowish too; hindwing light brown.

MALE GENITALIA. Tegumen+vinculum posteriorly with cup-shaped emargination, saccus thin, as long as width of tegumen+vinculum; valva small, basally parallel-sided, second half ventrally curved to rounded apex, apodeme as long as valva; phallus nearly two times longer than saccus.

FEMALE GENITALIA. Ventral arms of anterior apophyses ending in more strongly sclerotized plates around the round ostium, signum V-shaped, the lobes with pointed tip.

VARIATION. Some specimens with straighter stripe, no connection visible in cell (see fig. 278b). A more pronounced variation is illustrated by Mey (2018: 82).

SIMILAR SPECIES. Similar to the next species, but the yellowish colored stripes forming an H, while *O. nesiotes* with one band-like stripe, arrowhead-shaped. In male genitalia valva basally parallel-sided, with rounded apex, while *nesiotes* with more or less prolonged triangular valva. In female genitalia ventral arms of anterior

apophyses ending in two strongly sclerotized plates, while apophyses in *O. nesiotes* ending in a broad band-shaped plate.

Distribution. Widespread especially in warm temperate and subtropical areas, including central and south-western Europe, the Canary Islands, Madeira and Azores, South Africa, California and Juan Fernandez Islands (Davis, 1978). In the British Islands (as probably in most parts of central and northern Europe) it is mostly confined to cellars and warehouses, and only in the Isles of Scilly it seems to maintain outdoor populations (Pelham-Clinton, 1985). The species was found in the tropical orangeries of the botanical gardens in Germany (Frankfurt/Main), in Latvia (Riga)(Savenkov, pers. comm.) and in a plant-centre in Denmark (Buhl et al., 2016), in Sweden (Bengtsson, pers. comm.: "…only encountered indoors or in greenhouses."), from Hungary known from only two observations from Budapest (Fazekas (ed.), 2016), in the Netherlands (Muus, 2015b) records over some years in stems of plants are known (see below). Recently (Seliger (pers. comm.), according to Stemmer) the species was found indoors in Germany (Unkel am Stux). Bender (1941) described in detail the occurrence in wine cellars in various locations in Germany.

Bionomics. The larva feeds on a variety of dry vegetable matter such as palm-tree bark and old grass cuttings. According to Muus (2015b) larvae were found in the Netherlands in stems of *Crassula ovata* and *Dracaena marginata*. Klimesch (1980) has disturbed adults from plant detritus, mainly of *Phoenix canariensis* in the Canary Islands. Indoors it frequents wine-cellars and has been found on fungus and on wine corks (Bender, 1941; Davis, 1978; Pelham-Clinton, 1985). Larvae were described by Bender (1941); a more detailed description is given by Davis (1978), together with the description of pupae.

Remarks. The origin of the species is unknown. Meyrick (1928d: 817) wrote: "… probably the species has been introduced into Europe, and its habits here [in Great Britain] are artificial; …", but he does not suggest where the origin of the species might be (Davis, 1978).

279 *Oinophila nesiotes* Walsingham, 1908

Oinophila nesiotes Walsingham, 1908: 1014.

Description. Wingspan 8–10 mm; head with a line of erect light brown scales behind the brow-ridge, the appressed scales from neck to the line of erect scales greyish brown, the appressed scales from brow-ridge to palpi shiny light greyish brown; labial palpus on inside white, on outside of second segment cream-colored, third segment darker, second segment apically bristled; antenna as long as forewing; thorax and tegulae dark greyish brown, forewing with same coloration, with a light yellowish pattern: before 1/2 a band-like stripe from costa to dorsum, in cell with arrowhead-like prolongation to apex, on dorsum at 3/4 a band to the middle of wing, at 2/3 on dorsum a small patch; hindwing light brown.

Male genitalia. Tegumen+vinculum posteriorly nearly straight, saccus thin, about 1.6 times longer than width of tegumen+vinculum; valva small, from base continuously narrower to blunt apex,

more or less triangular, apodeme long; phallus nearly two times longer than saccus.

Female genitalia. Ventral arms of anterior apophyses ending in a broad band-shaped plate, ostium and first part of ductus bursae strongly sclerotized, ductus curved, signum basally broad, with two pointed lobes, broadly V-shaped.

Variation. No variation was seen.

Similar species. See under preceding species.

Distribution. Hitherto known only from the Canary Islands Tenerife and La Palma.

Bionomics. Klimesch (1980) found one female adult in detritus of *Phoenix canariensis*, which may be the larval pabulum.

285 Oinophila blayi Vives & Gastón, 2017

see: Additions, p. 113

Amphixystis Meyrick, 1901

Amphixystis Meyrick, 1901: 576.

Type species: *Amphixystis hapsimacha* Meyrick, 1901.

Gephyristis Meyrick, 1909: 27.

Type species: *Gephyristis anchiala* Meyrick, 1909.

Sporadarthra Meyrick, 1911: 303.

Type species: *Sporadarthra sicaria* Meyrick, 1911.

Ulocorys Meyrick, 1915: 356.

Type species: *Ulocorys antiloga* Meyrick, 1915.

Coeliometopa Turner, 1923: 181.

Type species: *Coeliometopa hypolampes* Turner, 1923.

Machimostola Meyrick, 1928a: 399.

Type species: *Amphixystis commatias* Meyrick, 1915.

Orthochtha Meyrick, 1928a: 399 (nec Karsch, 1891).

Type species: *Amphixystis hermatias* Meyrick, 1911.

Problastodes Meyrick, 1928a: 399.

Type species: *Amphixystis ensifera* Meyrick, 1911.

Orthochtherella Fletcher, 1940: 18 (nom. nov. pro *Orthochtha* Meyrick, 1928).

Description. Small to medium-sized species. Wings long and narrow, many of which with a pattern of oblique stripes or prolonged light band along dorsum. Head with smooth-scaled frons and occiput but with long erect scales on the vertex, forming an epifrontal tuft, similar to *Oinophila*.

Male genitalia. Vinculum a narrow transverse ring, saccus extremely narrow, rod-like, tegumen broad, uncus lobes widely separated, long, with pointed tip; valva elongate, in most species medially divided; phallus cylindrical, mostly with cornuti.

Female genitalia. Ventral arms of anterior apophyses strongly developed, fused above ostium; corpus bursae with various minute sclerotizations.

Distribution. More than 70 species are known worldwide, five species in the Palaearctic region (Canary Islands, North Africa, Yemen) and one in Europe.

Bionomics. The feeding habit is only known for some species, which feed on decaying plants and plant detritus.

280 *Amphixystis undosa* (Walsingham, 1908)

Ereunetis undosa Walsingham, 1908: 1013

DESCRIPTION. Wingspan 9–11 mm (♂), 16 mm (♀); head cream, nearly white, laterally from eyes to palpi with brown scales, scales on neck directed towards thorax, other scales as brush; labial palpus outside brown, inside cream-colored, second segment apically with some bristles; antenna dark brown; thorax cream-colored, tegulae dark brown; forewing long and narrow, dorsum with cream-colored band, with undulate separation from the dark brown colored part of wing, fringe at termen cream-colored, only on apex with a prolongation of dark brown line from the end of costa; hindwing cream-colored, shining.

MALE GENITALIA. Uncus lobes as long as width of tegumen, the inner edge strongly sclerotized, a little curved to inside, with pointed tip; vinculum thin, saccus a little shorter than phallus, thin, rod-like; valva elongate, apically with deep V-shaped slit, ventral part narrower than dorsal part, both with rounded apex; phallus cylindrical, with more than ten short cornuti, forming a cone-like structure.

FEMALE GENITALIA. Ventral arms of anterior apophyses ending in a lanceolate prolongation, fused medially into a more strongly sclerotized margin above ostium; dorsal arms ending in two oval plates; ductus bursae somewhat enlarged, with numerous minute and somewhat larger sized pointed thorns, arranged in a band.

VARIATION. No variation observed in the few specimens studied.

SIMILAR SPECIES. Superficially clearly distinguishable by the characteristic pattern of forewing.

DISTRIBUTION. Hitherto known only from the Canary Islands (Tenerife, La Gomera).

BIONOMICS. Adults have been reared from larvae in detritus of *Euphorbia canariensis*, one male adult was collected from detritus of *Phoenix canariensis* (Klimesch, 1980).

Teichobiinae

Teichobidae [sic!] Heinemann, 1870: 92.

Type genus: *Teichobia* Herrich-Schäffer, 1853.

Teichobia Herrich-Schäffer, 1853

Teichobia Herrich-Schäffer, 1853: 14 (key), 53.

Type species: *Teichobia verhuellella* Herrich-Schäffer, 1855.

Psychoides Bruand, 1851: 30 (nomenclaturally unavailable).

Psychoides Bruand, 1854: 109.

Type species: *Psychoides verhuella* Bruand, 1854.

Lambrosetia Stainton, 1854: 17 (key), 39.

Type species: *Lambrosetia verhuellella* Stainton, 1854.

Tichobia Herrich-Schäffer, 1856: 48 (unjustified emendation).

Mnesipatris Meyrick, 1935: 559.

Type species: *Mnesipatris phadrospora* Meyrick, 1935.

DESCRIPTION. Small moths, head with semi-appressed forward-directed lamel-

late scales, frons smooth-scaled; antenna short.

Male genitalia. Uncus with two narrow lobes with pointed tip, gnathos absent, juxta fused with inner faces of valvae.

Female genitalia. Papillae anales of oviscapt sclerotized, superficially resembling some Incurvariidae.

Distribution. Four Palaearctic species are known, two of them occurring in Europe.

Bionomics. The known larvae are leafminers in the first instars, than feeding externally on sporangia of several fern species. For details see below.

Remarks. The genus name *Teichobia* Herrich-Schäffer, 1853 is, according to Fletcher & Nye (1991) nomenclaturally available but without included nominal species until Herrich-Schäffer, 1855: 280 – by subsequent monotypy – (1854. 104) as *verhuellella*, an incorrect (of a multiple) original spelling (legend non-binominal).

T. verhuellella was a manuscript name from von Heyden made nomenclaturally available by Herrich-Schäffer. It was made available independently, with different type material, in the combination *Psychoides verhuella* Bruand, 1854: 109, and in the combination *Lamprosetia verhuellella* Stainton, 1854: 39. Bruand (1851: 30) cited the genus name *Psychoides* and only included the specific name "1187. *Verhuella*, Heyd. (*Tinea*). Mai-Juin. Chenilles sur capillaire." It was a manuscript name, which is insufficient under the ICZN Code, Article 12(c) to make the name nomenclaturally available.

Concerning the publication dates of the taxa described by Bruand see: Viette (1977).

281 *Teichobia filicivora* (Meyrick, 1937)

Mnesipatris filicivora Meyrick, 1937c: 194.

Description. Wingspan 10–12 mm; head ochreous or nearly white with loosely procumbent scales; labial palpus on inside and entire third segment ochreous, the first two segments on outside fuscous, second segment bristled; antenna of male serrate-ciliate, with cilia of more than twice the diameter of the shaft; forewing dark fuscous with a violet gloss, a yellowish white spot before beginning of fringe and a few yellowish spots along termen; hindwing grey.

Male genitalia. Uncus lobes narrow, with pointed tip, tegumen and vinculum band-shaped, saccus short, as long as uncus lobe; valva with long apodeme, basally broad, with strongly sclerotized margin, medially with slit, costal edge slightly concave, with rounded apex, a little longer than ventral edge, ventral edge from broad base narrower to pointed more strongly sclerotized tip; phallus as long as valva+apodeme, thin, narrower from base to apex.

Female genitalia. Posterior apophyses with characteristically sclerotized papillae anales, subapically connected with a reversed V-shaped clasp; dorsal arms of anterior apophyses fused in a shield-like plate, ventral arms fused in a band-like plate; signum small, cap-shaped.

Variation. No variability was seen.

Similar species. Superficially distinguishable from *T. verhuella* by having markings on forewings, in male genitalia by having valva with medial slit and female

genitalia with fused arms of anterior apophyses.

DISTRIBUTION. In Europe known from Madeira, the British Isles (including Ireland) (Emmet & Langmaid, 1997) and The Netherlands (Koster, 1998).

BIONOMICS. First record of the life history was given by Beirne (1937). The larva feeds on a variety of ferns, eating sporangia on the lower frond surface, usually under a cover of sporangia spun into an irregular mass (Pelham-Clinton, 1985). Larvae were found feeding on leaves of *Polypodium vulgare* and *Asplenium sclolopendrium* (Langmaid & Young, 2011). In Madeira numerous small larvae were found feeding on sporangia of *Asplenium* sp. at Encumeada, 1000 m in June 1993, leg. O. Karsholt. According to Lopez-Vaamonde *et al.* (2010) hosts are the ferns *Polystichum setiferum, Dryopteris filix-mas, Asplenium sclolopendrium*, often found indoors. The adult is active during day and is apparently not attracted to light.

REMARKS. Since its description *T. filicivora* has been regarded an endemic species of the British Islands, even though it was considered likely that it originated from elsewhere (because a related species occurs in Japan) (Pelham-Clinton, 1985). However, it is more plausible that it originates from Madeira, because *T. filicivora* mainly occurs in undisturbed laurisilva localities, normally indicating that it belongs to the original fauna of the island, from the time before the impact of man, and it has been introduced to The British Islands with ferns for gardening. Some species of *Blastobasis*, also originally endemic for Madeira, have established themselves in the British Islands in a similar way (Gaedike & Karsholt, 2001). The species is considered an alien species to Europe (according to Lopez-Vaamonde *et al.*, 2010).

282 *Teichobia verhuella* (Bruand, 1854)

Psychoides verhuella Bruand, 1854: 109, pl. 2, fig. 82.

Lamprosetia verhuellella Stainton, 1854: 39.

DESCRIPTION. Wingspan 8–10 mm; head dark fuscous; labial palpus on inside whitish, on outside dark fuscous; antenna less than half of forewing length, segments of flagellum square; thorax, tegulae and forewing dark fuscous, shiny; hindwing dark grey.

MALE GENITALIA. Uncus lobes thin, with more strongly sclerotized edges, vinculum band-shaped, saccus longer and twice as wide as uncus lobe, valva in the first half more or less parallel-sided, costal edge folded, last half curved (costal edge convex, ventral edge concave), apex rounded, apical half of ventral edge strongly sclerotized, apodeme thin, long; phallus longer than valva, straight.

FEMALE GENITALIA. Oviscapt apically between the papillae anales with numerous minute sclerotizations; ventral arms of anterior apophyses somewhat enlarged, not fused; ostium funnel-shaped, signum small, oval.

VARIATION. No variability observed.

SIMILAR SPECIES. See preceding species.

DISTRIBUTION. From Spain and France, from Balkans (Slovenia, Croatia, Macedonia, Romania), from Great Britain through

The Netherlands (Muus, 2015a; 2015b), Germany, Switzerland, Austria, Czech Republic, Slovakia, Poland to Hungary, in North Europe known from Sweden and Norway. No records are known from Italy.

Bionomics. Larvae have been reared by R. Bryner, feeding on *Asplenium trichomanes*. According to Heinemann (1870) larvae were found beside *A. trichomanes* also on *A. ruta-muraria* and *A. scolopendrium*.

Stathmopolitinae

Stathmopolitinae Sauter, 1982: 396.

Type genus: *Stathmopolitis* Walsingham, 1908.

Stathmopolitis Walsingham, 1908

Stathmopolitis Walsingham, 1908: 1019.

Type species: *Stathmopolitis tragocoprella* Walsingham, 1908.

Characterization of the genus see under the only known species *S. tragocoprella.*

The genus (and subfamily) is endemic on Canary Islands.

283 *Stathmopolitis tragocoprella* Walsingham, 1908

Stathmopolitis tragocoprella Walsingham, 1908: 1020, pl. LIII, fig. 16.

Description. Wingspan 12–20 mm; head brush fuscous; labial palpus on inside whitish, on outside fuscous, second segment with brush of long hair-like scales, directed obliquely forwards, third segment nearly as long as second segment; antenna a little longer than forewing, without pecten, with same coloration as head; thorax and tegulae dark fuscous; forewing pale cream-colored, mottled with dark fuscous patches, three band-like stripes from costa to dorsum at 1/4, 1/2 and 3/4; also dark fuscous are base and the area before apex; the other parts of wing partly overlaid with dark fuscous scales, this is why the edges of the stripes are not clearly defined; hindwing light grey.

Male genitalia. Uncus, tegumen and vinculum forming a band, uncus laterally with two socii, on inside with two bristled round processes, tegumen with various lateral and medial processes, vinculum with two lateral short processes; valva two times longer than uncus+ tegumen+vinculum, basal half parallel-sided, costal edge with more strongly sclerotized margin, last quarter slightly curved upwards, apex rounded, ventral edge in the apical half with somewhat undulate margin, on inside before apex a minute sclerotized blunt thorn, on inside from base nearly to apex a keel-shaped structure, basal half slender, then enlarged triangular, truncated apically; phallus is visible as a small oblong-oval structure.

Female genitalia. Anterior apophyses unforked, ending in a slightly sickle-shaped prolongation; ostium prolonged as a tube-shaped structure, with numerous wrinkles, apically strongly sclerotized.

Distribution. Known only from the Canary Islands Tenerife and La Palma.

New record. Spain: Canary Island La Palma, 1♂, Todoque, Casa Victoria, 330m, 28.v.2016, leg. et coll. Werno.

Bionomics. In the original description, Walsingham (1908) wrote: "The larva, which is of a semitransparent ivory-white, with pale yellowish brown head, and with inconspicuous, much paler, pronotal plate, feeds in the old pellets of goats' dung. It is extremely abundant about the caves, on cliffs east of Puerto Orotava, and in similar situations."

Addition

After finishing the manuscript, I realized that one European species was overlooked, and another species was described as new.

284 *Tinea hongorella* Zagulajev, 1975

Tinea hongorella Zagulajev, 1975a: 338, figs. 1–5.

Description. Wingspan 10–13 mm; head brush light brown to yellowish; labial palpus paler, outside somewhat darker, second segment with numerous bristles, third segment short; scape of antenna without pecten; thorax and tegulae light grey-brown; forewing unicolorous yellowish brown, shining, without any pattern; hindwing light grey.

Male genitalia. The entire genitalia apparatus characteristic for the species group *pellionella*. Saccus approximately two times longer than valva, valva basally broad, costal edge more or less straight, ventral edge basally rounded and narrower to rounded tip; phallus nearly two times longer than saccus, with two rows of minute strongly sclerotized thorns.

Female genitalia. Unknown.

Variation. No variability was seen in the studied specimens; Zagulajev wrote in the original description about a shadow of darker patch on forewing.

Similar species. Superficially not clearly distinguishable from the other members of the *T. pellionella* species group, clear differences are seen in the structure of the genitalia: phallus with two rows of minute strongly sclerotized thorns.

Distribution. Russia: Southern Ural (Chelyabinsk district, Gaedike & Šumpich, 2017), outside Europe known from Altai Republic (Gaedike & Šumpich, 2017) and Mongolia (type locality).

Bionomics. Larval pabulum unknown.

285 *Oinophila blayi* Vives & Gastón, 2017

Oinophila blayi Vives & Gastón, 2017: 318, figs. 1, 49.

Description. I refer to the original description, because I have not seen the original specimen. Wingspan unknown, as the type specimen with partly broken wings. Coloration of forewing blackish, after first third a whitish band from costa to dorsum.

Male genitalia. Unknown.

Female genitalia. Ventral arms of apophyses end in band-shaped parts of segment VIII, ostium lip deep U-shaped, in the middle a more strongly sclerotized area; signum bifurcate, the two arms of furca as long as basal part.

Variation. No variability observed.

SIMILAR SPECIES. Superficially distinguishable by having a whitish band on forewing, while *O. nesiotes* and *O. v-flava* with yellow V-shaped narrower band. In female genitalia the deep U-shaped ostium lip and large bifurcate signum are clear differences from *O. nesiotes* and *O. v-flava*.

DISTRIBUTION. Known only from the type locaty (Spain: Canary Island Tenerife, La Laguna).

BIONOMICS. Larval pabulum unknown.

CHAPTER 3

Distribution Catalogue

Abbreviations for the Distribution Catalogue

AND	Andorra
AL	Albania
AT	Austria
AZO	Portugal: Azores Islands
BA	Bosnia-Herzegovina
BG	Bulgaria
BL	Belgium
BY	Belarus
CAN	Spain: Canary Islands
CH	Switzerland
COR	France: Corsica
CY	Cyprus
CZ	Czech Republic
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
GB	Great Britain
GE	Germany
GR	Greece
HR	Croatia
HU	Hungary
IR	Ireland
IS	Iceland
IT	Italy
KRI	Greece: Crete
LT	Lithuania
LU	Luxembourg
LV	Latvia
MA	Malta
MD	Moldova
MDR	Portugal: Madeira Islands
MK	Macedonia
MN	Montenegro
NL	The Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
RU	Russia
SAR	Italy: Sardinia
SB	Serbia
SE	Sweden
SL	Slovenia
SIC	Italy: Sicily
SK	Slovakia
UA	Ukraine

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	CAN	MDR	AZO	PT	ES	AND	Fr	COR	IT	SAR	SIC	MA	SI	HR	MN	SB	BA	MK	AL	GR
181. P. mediterraneae					*															
182. M. ochraceella					*	*	*		*											
183. M. lutosella																				
184. M. diacona					*															
185. M. ataxella	*			*	*		*		*									*		*
186. M. lambessella	*				*															
187. A. hungaricellum					*		*		*				*	*			*	*		*
188. A. petrinella	*			*	*		*		*					*						*
189. A. insularis	*			*	*		*				*	*								
190. A. syriaca																				
191. A. arenbergeri																				
192. A. larseni	*																			
193. H. ditella							*		*			*								
194. H. insectella	*?						*		*				*				*			
195. C. pratoriella																				
196. C. colonella																				
197. C. tunesiella				*	*															
198. C. crassiflavella	*			*	*		*	*	*	*			*	*			*	*?		
199. C. angusticostella					*			*	*				*	*				*	*	*
200. E. fuscoviolacella																				*
201. C. crassicornella									*		*								*	*
202. C. agenjoi				*	*															
203. C. danubiella				*	*							*		*						*
204. C. maroccanella				*	*															
205. C. dzhungarica																				
207. R. zernyi				*	*															
208. R. haasi				*	*															
209. R. chrysopterella				*	*															
210. R. parva					*															
211. R. latiusculella																				
212. R. panormitanella										*	*									
213. R. relicinella									*		*	*	*	*	*			*		*
214. R. mauritanica												*								
215. R. flavofimbriella				*	*															
216. A. liguriella				*	*		*		*					*						*
217. A. gardesanella									*					*						*
218. A. cubiculella					*							*								
219. T. tapetzella	*	*	*	*	*		*	*	*	*		*	*	*	*	*	*	*	*	*
220. T. scandinaviella																				

KRI	CY	BG	RO	MD	IR	GB	NL	BL	LU	GE	CH	AT	CZ	SK	HU	PL	DK	IS	NO	SE	FI	EE	LT	LV	BY	UA	RU
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	CAN	MDR	AZO	PT	ES	AND	Fr	COR	IT	SAR	SIC	MA	SI	HR	MN	SB	BA	MK	AL	GR
221. T. bipartitella	*	*	*?	*	*		*	*	*	*		*		*				*		*
222. T. robinsoni	*	*		*?																
223. E. fuliginosella				*	*		*	*	*	*				*						
224. E. montelliella																				
225. E. bugrai																				*
226. T. bisselliella	*	*		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*
227. P. atomosella	*	*	*									*								
228. T. flavescentella					*		*		*			*		*				*		*
229. T. pellionella	*		*	*	*		*	*	*	*		*	*	*	*			*		*
230. T. translucens	*			*	*		*		*	*	*	*		*	*				*	*
231. T. murariella	*	*	*	*	*		*		*			*?	*	*						*
232. T. lanella					*															
233. T. messalina	*			*	*				*			*								*
234. T. dubiella	*	*		*	*		*	*	*		*			*						*
235. T. steueri																				*
236. T. bothniella																				
237. T. basifasciella	*			*	*		*	*	*	*	*	*		*				*	*	*
238. T. columbariella					*		*		*				*							*
239. T. svenssoni																				
240. T. pallescentella							*		*			*								
241. T. omichlopis							*		*					*	*					*
242. T. semifulvella					*		*		*				*	*						
243. T. trinotella	*	*		*	*		*	*	*	*	*		*	*		*		*	*	*
244. N. fuscella	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			*	*
245. N. striolella				*			*		*							*		*		*
246. N. baryspilas														*						
247. N. truncicolella					*				*											
248. P. merdella	*			*	*						*	*		*						*
249. P. autochthones												*								
250. P. orientalis												*								
251. C. ratjadae					*															
252. C. oxymora	*	*																		
253. M. immaculatella	*							*												
254. P. allutella	*	*								*										
255. P. lodli	*			*	*		*					*								
256. M. tenuicornella									*					*	*					
257. M. montana							*		*											
258. M. laevigella		*		*	*		*	*	*	*	*	*	*	*		*		*	*	*
259. M. weaverella					*		*		*				*	*						*

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260. M. neglecta									*				*							
261. M. spilotella																				
262. M. burmanni																				
263. M. luteocostalis																				
264. M. obviella				*	*	*	*	*	*			*	*	*	*	*	*	*	*	*
265. M. crocicapitella	*	*	*	*	*		*	*	*		*	*	*	*		*		*		*
266. M. imella	*		*	*	*		*	*	*	*	*	*	*	*	*	*		*	*	*
267. M. nigricantella	*	*	*	*	*		*		*	*		*								
268. M. henderickxi		*																		
269. M. christophi																				
270. M. pallidella									*											
271. M. barbarosi		*																		
272. M. fenestratella							*													
273. M. monachella					*		*		*				*				*			*
274. P. fraudulentella								*					*							
275. O. sacchari	*	*	*	*	*		*													
276. O. omoscopa	*	*	*	*			*	*	*	*										
277. W. panchalcella	*										*							*		*
278. O. vflava	*	*	*	*	*															
279. O. nesiotes	*																			
280. A. undosa	*																			
281. T. filicivora		*																		
282. T. verhuella					*		*					*	*	*						
283. S. tragocoprella	*																			
284. T. hongorella																				
285. O. blayi	*																			

KRI	CY	BG	RO	MD	IR	GB	NL	BL	LU	GE	CH	AT	CZ	SK	HU	PL	DK	IS	NO	SE	FI	EE	LT	LV	BY	UA	RU
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CHAPTER 4

Colour Plates

Plate 1: Figs 181a–186b: 4.0 times natural size

181. *Pachyarthra mediterraneae* (Bethune-Baker, 1894)
   a) ♂, Egypt: without location, coll. Andres (SDEI)
   b) ♂, Libya: Cyrenaica, Sefeidima, leg. G.C. Krüger (SDEI)
   c) ♂, Spain: Prov. Sevilla, Guadalquivir, Trebujena, 17.ix.1974, leg. M. & W. Glaser, slide 2740 GP (SDEI)

182. *Myrmecozela ochraceella* (Tengström, 1848)
   a) ♀, Denmark: Bulbjerg, 20.viii.1978, leg. K. Larsen (SDEI)
   b) ♀, Denmark: Sjæland, Dybesø, 12.vii.1968, leg. H. Hendriksen (SDEI)
   c) ♂, Sweden: Kiruna, Krokvik, 9.vii.2005, leg. H. Roweck et al. (SDEI)

183. *Myrmecozela lutosella* (Eversmann, 1844)
   a) ♂, Russia: S-Ural, env. of Moskovo, 18.vi.2009, leg. J. Šumpich (SDEI)
   b) ♂, Russia: Sarepta (SDEI)

184. *Myrmecozela diacona* Walsingham, 1907
   ♀, Algeria: Bou Hedma, 8.iii.1929, leg. C. Dumont (SDEI)

185. *Myrmecozela ataxella* (Chrétien, 1905)
   a) ♂, Spain: Albarracin (SDEI)
   b) ♂, Libya: Gharian, Wadi El Hira, 10.–20. xii.1963, leg. U. Seneca (SDEI)
   c) ♂, Tunisia: Prov. Nabeul, env. of Soliman, 5.x.2007, leg. B. Schacht (SDEI)
   d) ♀, Greece: Itea, Desfina, 9.v.2005, leg. W. Schmitz (SDEI)
   e) ♀, Spain: Zaragossa, Bujaraloz, 29.v.2015, leg. J. Viehmann (SDEI)

186. *Myrmecozela lambessella* Rebel, 1901
   lambessella s. str.:
   a) ♂, Algeria: Lambessa, 1887, leg. Staudinger (SDEI)
   b) ♀, Spain: Canary Island, Gran Canaria, St. Bartolomé, leg. Pinker (SMNK)
   ssp. *cuencella*:
   c) ♂, Spain: Cuenca (SDEI)

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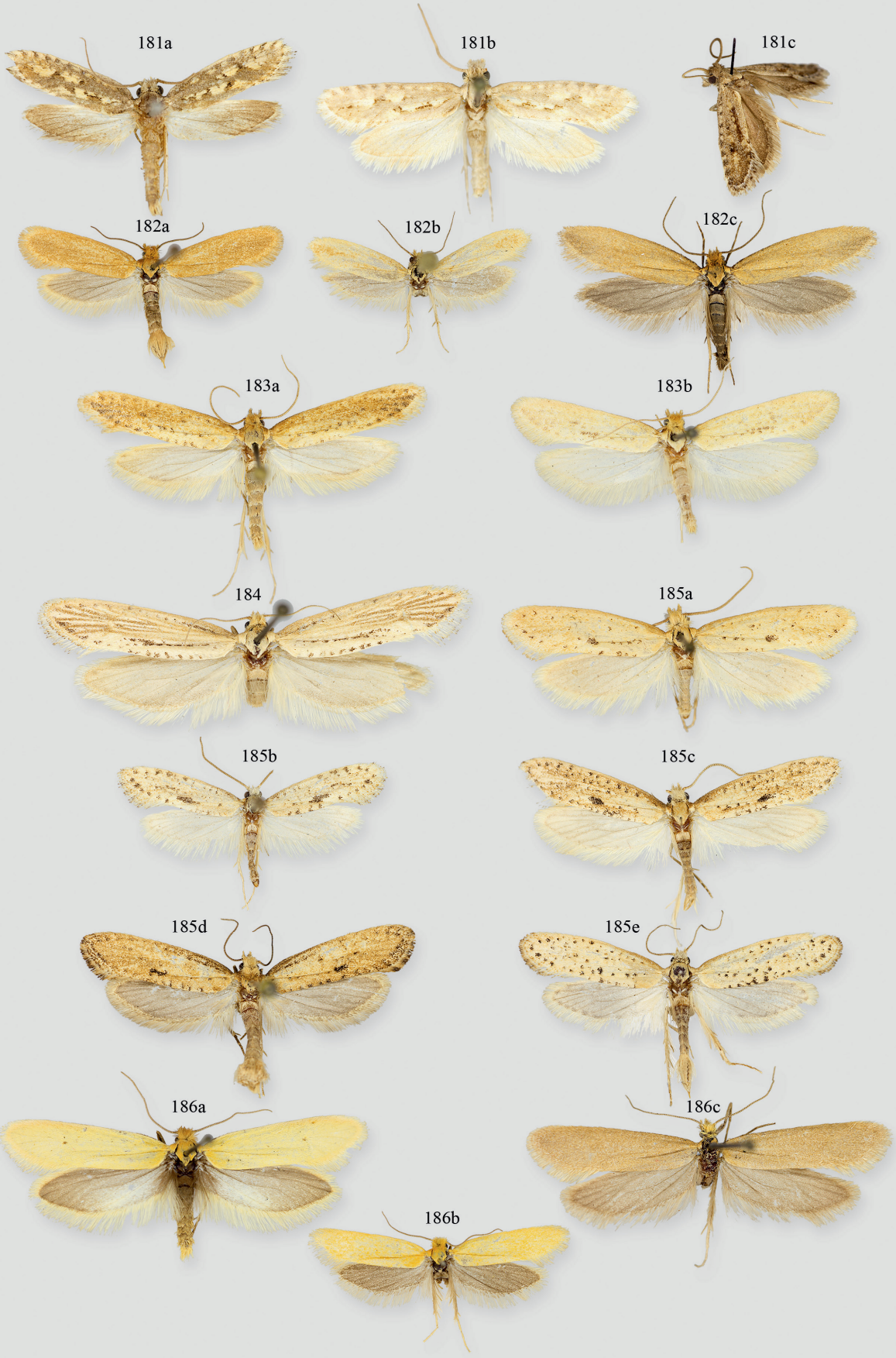
181a
181b
181c
182a
182b
182c
183a
183b
184
185a
185b
185c
185d
185e
186a
186b
186c

Plate 2: Figs 187a–197b: 4.0 times natural size

187. *Ateliotum hungaricellum* Zeller, 1839
   a) ♂, Hungary: Budapest (SDEI)
   b) ♂, Turkey: Yosgat, Çiçek Daĝlari, 30.vi.2001, leg. G. Baisch (SDEI)
   c) ♂, Croatia: Fruska Gora, 28.vi.–12.vii.1935, leg. Daniel (SDEI)
   d) ♂, Croatia: Island Krk, Krk-Vrbnik, 23.vi.1988, leg. G. Baldizzone (SDEI)

188. *Ateliotum petrinella* (Herrich-Schäffer, 1854)
   a) ♂, Spain: Val Alcoy P.N. de la Font Roja, 25.-28.vi.2010, leg. F. Theimer (SDEI)
   b) ♂, Spain: Andalusia, Sierra Alfacar near Granada, 26.vi.–8.vii.1982, leg. W. Glaser (SDEI)
   c) ♂, Italia: Liguria, Noli (Savona), 21.–30. vi.1951, leg. J. Klimesch (SDEI)

189. *Ateliotum insularis* (Rebel, 1896)
   a) ♂, Spain: Canary Island, La Palma, Mirador el Times, 22.vii.2000, leg. Sobczyk (SDEI)
   b) ♀, Spain: Huelva, La Cascajera, 14.iii.2006, leg. M. Huertas (SDEI)
   c) ♂, Spain: Canary Island, Teneriffe, Guimar, 3.–23.x.1966, leg. J. Klimesch (SDEI)

190. *Ateliotum syriaca* (Caradja, 1920)
   ♂, Lebanon, Kesrouan, Jabal Moussa, 29.viii.2010, leg. J. & A. Kullberg (SDEI)

191. *Ateliotum arenbergeri* Petersen & Gaedike, 1985
   ♂, Cyprus, Troodos Mts, south of Lania, 600m, 29.–31.vii.1981, leg. M. & E. Arenberger (SDEI)

192. *Ateliotum larseni* Gaedike, 2011
   ♀, Spain: Canary Island, Tenerife, Roque Negro, 15.ix.2014, leg. A. Stübner (SDEI)

193. *Haplotinea ditella* (Pierce & Diakonoff, 1938)
   ♀, Czech Republic: Praha (SDEI)

194. *Haplotinea insectella* (Fabricius, 1794)
   a) ♀, Germany: Adendorf, 2.viii.2010, leg. H. Wegner (SDEI)
   b) ♂, Germany: Erfurt, 8.vii.19., leg. Beer (SDEI)

195. *Cephimallota praetoriella* (Christoph, 1872)
   a) ♀, Iran: Masandaran, 60km E Gonbad Quabus, 8.vii.1972, leg. Ebert & Falkner (SDEI)
   b) ♂, Russia: Sarepta, leg. Christoph (SDEI)
   c) ♂, Turkey: Çiçek Daĝlari, 26.vi.2001, leg. G. Baisch (SDEI)

196. *Cephimallota colonella* (Erschoff, 1874)
   a) ♂, Russia: Amur (SDEI)
   b) ♀, Russia: Wladiwostok (SDEI)

197. *Cephimallota tunesiella* (Zagulajev, 1966)
   a) ♂, Algeria: Batna, 23.viii.1910, leg. A.E. Eaton (SDEI)
   b) ♀, Libya: Cyrenaica, Derna, leg. G. Krüger (SDEI)

187a
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187c
187d
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188b
188c
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189b
189c
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194a
194b
195a
195b
195c
196a
196b
197a
197b

Plate 3: Figs 198–215: 4.0 times natural size

198. *Cephimallota crassiflavella* Bruand, 1851
♂, Germany: Schloßböckelheim, 20.vii.2012, leg. R. Seliger (SDEI)

199. *Cephimallota angusticostella* (Zeller, 1839)
♂, Italy: Toscana, env. of Dicomano, 17.–23.vi.2006, leg. F. Theimer (SDEI)

200. *Edosa fuscoviolacella* (Ragonot, 1895)
a) ♂, Lebanon: Nar el Kalb, 12km N of Beyrouth, 6.vi.1969, leg. Groß (SDEI)
b) ♂, Jordania: Zerkatal, env. of Romana, 21.xi.1967, leg. Klapperich (SDEI)

201. *Crassicornella crassicornella* (Zeller, 1847)
♂, Greece: Parnassos, Delfi, 25.v.1990, leg. C.R. Langohr (SDEI)

202. *Crassicornella agenjoi* (Petersen, 1957)
♂, Spain: Prov. Madrid: Escalona, 30.vii.1982, leg. W. De Prins (SDEI)

203. *Ceratuncus danubiella* (Mann, 1866)
a) ♂, Greece: Peloponnes, Parnon-Oros, 5.v.1996, leg. G. Baisch (SDEI)
b) ♂, Georgia: Miskheta, 28.vi.2014, leg. T. Jaworski (SDEI)

204. *Ceratuncus maroccanella* (Amsel, 1951)
a) ♂, Morocco: Moyen Atlas, Ifrane, 5.–10.vii.1972, leg. F. Hahn (SDEI)
b) ♂, Morocco: Haute Atlas, Asni, 6.vii.1984, leg. W. De Prins (SDEI)

205. *Ceratuncus dzhungaricus* Zagulajev, 1971
♂, Kazakhstan: Dzhungarian Alatau, 11.vii.1957, leg. Kuznetsov (SDEI)

206. *Ceratuncus affinitella* (Rebel, 1901)
a) ♂, S-Iran: Dalaki, 20.iii.1973, leg. H.G. Amsel (SDEI)
b) ♂, Lebanon: Bcharre, Al Ariz, 9.vi.2012, leg. J. Kullberg & T. Lievonen (SDEI)

207. *Reisserita zernyi* Petersen, 1957
♂, Spain: San Ildefonso (SDEI)

208. *Reisserita haasi* (Rebel, 1901)
♂, Spain: Valencia, El Saler, P.N. L'Albufera, 22.–25.vi.2010, leg. F. Theimer (SDEI)

209. *Reisserita chrysopterella* (Herrich-Schäffer, 1854)
a) ♂, Spain: Cuenca, vi–vii 1912, leg. Korb (SDEI)
b) ♂, Spain: Orcera, 2.vii.1977 (SDEI)

210. *Reisserita parva* Petersen & Gaedike, 1979
♂, Spain: Trebujena, 13.vii.1977, leg. E. Arenberger (SDEI)

211. *Reisserita latiusculella* (Stainton, 1867)
♂, Lebanon: Koura, Beshmezzine, 3.vi.2012, leg. J. Kullberg & T. Lievonen (SDEI)

212. *Reisserita panormitanella* (Mann, 1859)
a) ♂, Italy: Sicily: Palermo, San Martino delle Scale, 20.-31.v.1954, leg. J. Klimesch (SDEI)
b) ♂, Tunisia: El Kef area, 14.v.1988, leg. O. Karsholt (SDEI)

213. *Reisserita relicinella* (Herrich-Schäffer, 1853)
a) ♂, Croatia: Dalmatia, env. of Zadar, 14.–30.vii.2013, leg. S. Steegers (SDEI)
b) ♂, Bulgaria: Nessebar, 11.–23.vii.1959, leg. J. Soffner (SDEI)
c) ♀, sBulgaria: Nessebar, 11.–23.vii.1959, leg. J. Soffner (SDEI)

214. *Reisserita mauritanica* (Bethune-Baker, 1885)
♂, Malta: Hattard, 10.vi.2006, leg. M. Zerafa (SDEI)

215. *Reisserita flavofimbriella* (Chrétien, 1925)
♀, Spain: Andalucia, Coto Donana (Nat. res.), 19.vii.1983, leg. G. Baldizzone & P. Triberti (coll. Baldizzone)

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204b
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206b
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212a
212b
213a
213b
213c
214
215

Plate 4: Figs 216a–223b: 4.0 times natural size

216. *Anomalotinea liguriella* (Millière, 1879)
   a) ♂, Spain: Alhama de Murcia, 9.v.1978, leg. M. & W. Glaser (SDEI)
   b) ♂, Spain: Cam. Baza, 16.vii.1987, leg. G. Baldizzone & E. Traugott-Olsen (SDEI)
   c) ♂, Spain: PN d'Albufera, 28.vi.2010, leg. A. Stübner (SDEI)
   d) ♂, Bulgaria: Pirin, Sandanski Ploski, 30.vii.–9.viii.2012, leg. N. Savenkov (coll. Roweck)
217. *Anomalotinea gardesanella* (Hartig, 1949)
   ♂, Greece: Island Lesvos, 7.vi.2009, leg. L. Kaila & J. Kullberg (SDEI)
218. *Anomalotinea cubiculella* (Staudinger, 1859)
   a) ♂, Spain: Granada, 24.v.1991, leg. G.R. Langohr (SDEI)
   b) ♂, Spain: Almeria, Sierra Cabrera, 29.iii.1993, leg. Lingenhöle (SDEI)
   c) ♂, Algeria: Lambessa, leg. Staudinger (SDEI)
219. *Trichophaga tapetzella* (Linnaeus, 1758)
   a) ♀, Germany: Probststeierhagen, 2.vi.2006, leg. D. Hausenblas (SDEI)
   b) ♀, Germany: Stassfurt, leg. J. Soffner (SDEI)
   c) ♀, Germany: Weinheim/Bergstraße, 5.vi. 1948, leg. H. Lienig (SDEI)
220. *Trichophaga scandinaviella* Zagulajev, 1960
   ♂, Russia: Mattivuono, 1934, leg. Williams (FMNH)
221. *Trichophaga bipartitella* (Ragonot, 1892)
   a) ♂, Morocco: Settat prov., 8km W Oulad Abbou, 10.iv.2015, leg. J. Tabell (SDEI)
   b) ♀, Morocco: Tiznit Prov., 3,2km SSW Mirleft, 12.iv.2015, leg. J. Tabell (SDEI)
   c) ♀, Spain: Canary Island, Teneriffe, Guimar, iii.1962, leg. Pinker (SDEI)
   d) ♂, UAE, Fujairah Emirate, Wadi Wurrayah, 20.ii.2015, leg. R. Breithaupt (SDEI)
222. *Trichophaga robinsoni* Gaedike & Karsholt, 2001
   ♂, Spain: Canary Island, Teneriffe, Guimar, 2.vi.1965, leg. J. Klimesch (SDEI)
223. *Elatobia fuliginosella* (Lienig & Zeller, 1846)
   a) ♂, France: Var, Sillans la Cascade, Plan d'Arboux, 26.v.2014, leg. R. Seliger (SDEI)
   b) ♂, France: without location, leg. Bang-Haas (SDEI)
224. *Elatobia montelliella* (Schantz, 1951) see: plate 8.

216a
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219c
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221b
221c
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223a
223b

Plate 5: Figs 226a–240b: 4.0 times natural size

226. *Tineola bisselliella* (Hummel, 1823)
   a) ♀, Germany: Staßfurt, 31.viii.1961, leg. J. Soffner (SDEI)
   b) ♂, Germany, env. of Ronneburg, 5.vi.1958, leg. M. Nikolaus (SDEI)

227. *Praeacedes atomosella* (Walker, 1863)
   ♂, Malta: Naxxar, 20.vi.2006, leg. M. Zerafa (SDEI)

228. *Tinea flavescentella* Haworth, 1828
   a) ♂, Germany: Meissen, 20.vi.1919, leg. J. Morczek (SDEI)
   b) ♀, Macedonia: without location, leg. W. Krone (SDEI)

229. *Tinea pellionella* Linnaeus, 1758
   a) ♂, Germany: env. of Nordhausen, 1.vi.2003, leg. Ch. Kutzscher (SDEI)
   b) ♂, Germany: Bad Blankenburg, 21.viii.1968, leg. H. Steuer (SDEI)
   c) ♀, Germany: Meißen, 23.vi.1933, leg. J. Morczek (SDEI)
   d) ♀, Germany: env. of Prenzlau, ex pellets of *Tyto alba*, em. vii.1966, leg. T. Bohm (SDEI)

230. *Tinea translucens* Meyrick, 1917
   a) ♂, Israel: Jerusalem, ex l. 27.iv.1930, leg. H.G. Amsel (SDEI)
   b) ♀, Israel: Jerusalem, ex l. 27.iv.1930, leg. H.G. Amsel (SDEI)

231. *Tinea murariella* Staudinger, 1859
   a) ♂, Italy: Torino, 6.v.1966, leg. U. Parenti (SDEI)
   b) ♀, Italy: Torino, 6.v.1966, leg. U. Parenti (SDEI)

232. *Tinea lanella* Pierce & Metcalfe, 1934
   ♀, Spain: Sierra Nevada, 2km S Picena, 22.vi.2011, leg. A. Stübner (ZSM)

233. *Tinea messalina* Robinson, 1979
   a) ♂, Malta: Naxxar, ex l. 1.vi.2006, leg. M. Zerafa (SDEI)
   b) ♀, Greece: Parnassos Oros, env. of Delfi, 25.ix.2007, leg. G. Baisch (SDEI)

234. *Tinea dubiella* Stainton, 1859
   a) ♂, Italy: Emilia, San Pietro in Elda, 18.vii.1962, leg. U. Parenti (SDEI)
   b) ♀, Italy: Abruzzo, dint. Vacri, 11.vii.1961, leg. U. Parenti (SDEI)

235. *Tinea steueri* Petersen, 1966
   ♀, Germany: Bad Blankenburg, 14.vi.1968, leg. H. Steuer (SDEI)

236. *Tinea bothniella* Svensson, 1953
   ♂, Finland: Kuusamo, ex larva 2014, leg. M. Mutanen & P. Välimäki (SDEI)

237. *Tinea basifasciella* Ragonot, 1895
   a) ♀, Italy: Sardinia, Mte Arcuso, Sa Canna, 22.vi.2004, leg. G. Baldizzone & P. Triberti (SDEI)
   b) ♀, Spain: Sierra Nevada, 5km S Picena, 24.vi.2011, leg. A. Stübner (SDEI)
   c) ♀, Greece: Peloponnes, env. of Pirgos, 10.x.1993, leg. Lingenhöle (SDEI)

238. *Tinea columbariella* Wocke, 1877
   a) ♀, Denmark: Sundeved, ex ovo, 14.x.1991, leg. K. Gregersen (SDEI)
   b) ♂, Denmark: Sundeved, ex ovo, 14.x.1991, leg. K. Gregersen (SDEI)

239. *Tinea svenssoni* Opheim, 1965
   ♀, Sweden: Lulea, ex l. 11.v.1984, leg. I. Svensson (SDEI)

240. *Tinea pallescentella* Stainton, 1851
   a) ♂, Czech Republic: Praha, indoor, November/December 1944 (SDEI)
   b) ♀, Czech Republic: Praha, indoor, January 1945 (SDEI)

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240b

Plate 6: Figs 241a–255b: 4.0 times natural size

241. *Tinea omichlopis* Meyrick, 1928
   a) ♂, Austria: Oberweiden, 29.vii.1964, leg. W. Glaser (SDEI)
   b) ♂, Hungary: Veszprem-Varpalota-steppe, 24.vii.2012, leg. Ch. Wieser (SDEI)

242. *Tinea semifulvella* Haworth, 1828
   a) ♀, Czech Republic: Riesengebirge [Krkonose], July 1926, leg. J. Morczek (SDEI)
   b) ♀, Germany: Rügen Island: Sellin, 1.–12.vii.1970, leg. F. Eichler (SDEI)
   c) ♀, Germany: Erfurt, 7.vii., leg. E. Beer (SDEI)
   d) ♂, Germany: Bad Frankenhausen, 29.vi.1963, leg. O. Müller (SDEI)
   e) ♂, Germany: Berlin, 5.vi.1985, leg. L. Stiesy (SDEI)

243. *Tinea trinotella* Thunberg, 1794
   a) ♂, Slovenia: Piran, Strunjan, 22.iv.2000, leg. Lasan (SDEI)
   b) ♀, Germany: Ronneburg, ex l. 10.v.1948, leg. K. Ritter (SDEI)
   c) ♂, Germany: Berlin, 22.v.1984, leg. L. Stiesy (SDEI)
   d) ♂, Italy: Lucania, Mte Vulture, 9.iv.1967, leg. F. Hartig (SDEI)
   e) ♂, Spain: Canary Island, Tenerife, Baranco Ruiz, leg. Pinker (SDEI)

244. *Niditinea fuscella* (Linnaeus, 1758)
   a) ♀, Germany: Gera, 15.vi.1973, leg. K. Ritter (SDEI)
   b) ♀, Germany: Lühmannsdorf, 13.–17.vi.1967, leg. G. Friese (SDEI)

245. *Niditinea striolella* (Matsumura, 1931)
   a) ♂, Germany: Neunkirchen/Rheinland, ex l. 19.vi.1912 (SDEI)
   b) ♂, Germany: Schwerin, ex l. 5.iii.1986, leg. Labes & Deutschmann (SDEI)

246. *Niditinea baryspilas* (Meyrick, 1936)
   ♂, Egypt, Kahira Garden City, 10.i.1974, leg. V. Zouhar (SDEI)

247. *Niditinea truncicolella* (Tengström, 1848)
   ♂, Finland: Kuusamo, 28.–30.vi.2007, leg. N. Savenkov (SDEI)

248. *Proterospastis merdella* (Zeller, 1852)
   ♂, Malta: Naxxar, 1.vi.2007, leg. M. Zerafa (SDEI)

249. *Proterospastis autochthones* (Walsingham, 1907)
   ♂, Malta: Bormla, ex l. 18.vi.2008, leg. M. Zerafa (SDEI)

250. *Proterospastis orientalis* (Petersen, 1959)
   ♂, Greece: Crete, Makrigialos Aspros Potamos, 9.ix.2001, leg. R. Sutter (SDEI)

251. *Ceratobia ratjadae* Passerin d'Entrèves, 1978
   ♂, Spain: Denia, ex l. 29.iv.2005, leg. F. Groenen (coll. Schreurs in RMNH) [antenna partly broken]

252. *Ceratobia oxymora* (Meyrick, 1919)
   a) ♂, Spain: Canary Island, Tenerife, Guimar, 7.–13.xi.2013, leg. A. Stübner (SDEI)
   b) ♀, Spain: Canary Island, Tenerife, Guimar, 10.–16.xi.2012, leg. A. Stübner (SDEI)

253. *Metatinea immaculatella* (Rebel, 1892)
   a) ♀, Spain: Canary Island, Tenerife, Barranco de Igueste, 14.iv.2009, leg. A. Kopp (SDEI)
   b) ♀, Spain: Canary Island, Gran Canaria, Caldera de Bandama, leg. Pinker (SDEI)

254. *Phereoeca allutella* (Rebel, 1892)
   a) ♂, Spain: Canary Island, Tenerife, Guimar, 26.xi.–2.xii.2011, leg. A. Stübner (SDEI)
   b) ♀, Spain: Canary Island, Tenerife, Guimar, ex l. 24.xii.2014, leg. A. Stübner (SDEI)

255. *Phereoeca lodli* Vives, 2001
   a) ♂, Malta: Naxxar, ex l., 20.viii.2006, leg. M. Zerafa (SDEI)
   b) ♀, Malta: Haz-Zebbug, ex l., 20.v.2006, leg. M. Zerafa (SDEI)

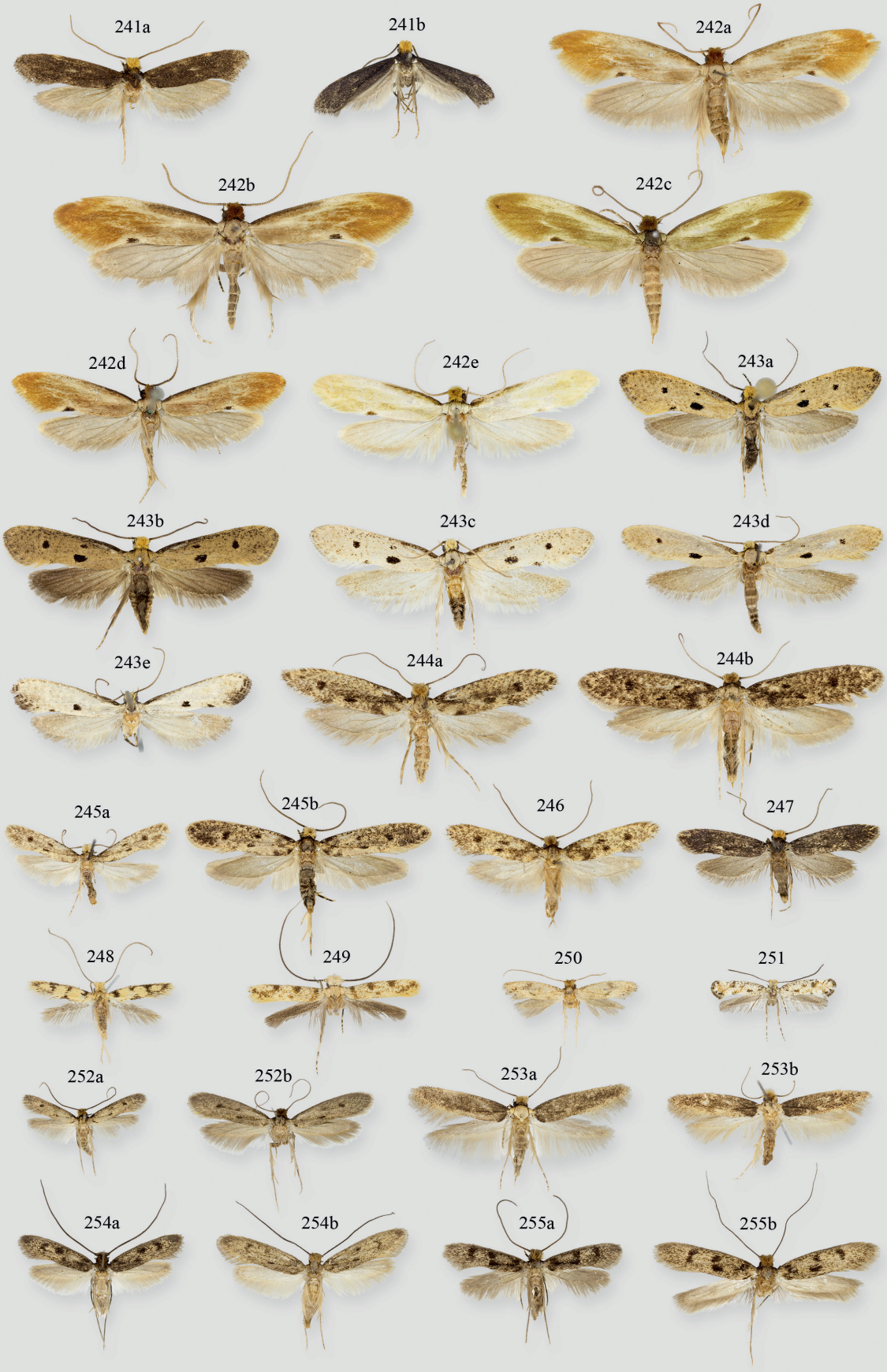
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Plate 7: Figs 256–271: 4.0 times natural size

256. *Montetinea tenuicornella* (Klimesch, 1942)
♀, Croatia: Dalmatia mer., env. of Gravosa, 1.–10.vi.1939, leg. J. Klimesch (ZSM)

257. *Montetinea montana* Petersen, 1957
♂, Italy: Piemonte, Parco Natur. Reg. Alpi Maritimi, S. Giacomo di Entracque da Gias della Siula, 1700–1800m, 22.vii.1997, leg. G. Baldizzone (SDEI)

258. *Monopis laevigella* (Denis & Schiffermüller, 1775)
a) ♀, Germany: Ronneburg, ex l. Kohlmeise [*Parus major*] 2.v.1968, leg. K. Ritter (SDEI)
b) ♂, Finland: Ylikiiminki, 2001, on nest of *Aegolius funereus*, leg. M. Mutanen (ZMUO)

259. *Monopis weaverella* (Scott, 1858)
a) ♂, Germany: Staßfurt, 10.v.1959, leg. J. Soffner (SDEI)
b) ♀, Germany: Thüringen, Luisenthal, 20.v.–2.vi.1989, leg. Ch. Kutzscher (SDEI)

260. *Monopis neglecta* Šumpich & Liška, 2011
a) ♂, Czech Republic: Moravia, Podyjí National Park, Hardeggská vyhlídka, 19.vi.2006, leg. J. Šumpich (NMPC)
b) ♂, Czech Republic: Moravia, Podyjí National Park, Podmolí-Šobes, 24.viii.2002, leg. J. Šumpich (NMPC)

261. *Monopis spilotella* (Tengström, 1848)
a) ♂, Finland: Lapland (SDEI)
b) ♂, Sweden: Västmanland, Virsbo, 11.vii.1964, leg. G. Träff (SDEI)

262. *Monopis burmanni* Petersen, 1979
♂, Austria: Teriol. sept., Innsbruck, 5.vi.1971, leg. Burmann (SMNK)

263. *Monopis luteocostalis* Gaedike, 2006
♂, Russia: Altai Republic, Kash-Agach Distr., 15km SW Kurai, Salangana lake, 24.–25.vi.2015, 1830m, leg. J. Šumpich (SDEI)

264. *Monopis obviella* (Denis & Schiffermüller, 1775)
a) ♀, Germany: Berlin-Friedrichshagen, 18.vi.1960, leg. G. Friese (SDEI)
b) ♂, Germany: Staßfurt, 21.vi.1949, leg. J. Soffner (SDEI)

265. *Monopis crocicapitella* (Clemens, 1859)
a) ♂, Germany: Bremen, ex l. 27.xi.1934, leg. H.G. Amsel (SDEI)
b) ♂, Austria: Wien-Mariabrunn, 4.x.1964, leg. C. Holzschuh (SDEI)

266. *Monopis imella* (Hübner, 1813)
a) ♀, Germany: Speyer (SDEI)
b) ♀, Germany: env. of Erfurt, 15.viii., leg. C. Beer (SDEI)
c) ♂, Spain: Marbella, El Mirador, 6.ii.1984, leg. E. Traugott-Olsen (SDEI)
d) ♂, Germany: Brandenburg, Peitz-Ost, 31.vii.2016, leg. A. Stübner (ZSM)

267. *Monopis nigricantella* (Millière, 1872)
a) ♀, Spain: Zaragozza, 6km W of Bujaraloz, 19.x.2015, leg. J. Viehmann (SDEI)
b) ♂, Spain: Burgos, Villaquiran, 30.viii.1966, leg. Y. de Lajonquière (SDEI)

268. *Monopis henderickxi* Gaedike & Karsholt, 2001
a) ♂, Portugal: Madeira, Serra do Rosario, 600m, ex l. 1.iv.1996, leg. H. Henderickx (SDEI)
b) ♀, Portugal: Madeira, Serra do Rosario, 600m, ex l. 18.iv.1996, leg. H. Henderickx (SDEI)

269. *Monopis christophi* Petersen, 1957
♀, Afghanistan: Bamian, 31.vi.1963, leg. F. Kasy & E. Vartian (SDEI)

270. *Monopis pallidella* Zagulajev, 1955
♂, Russia: Central Siberia, Barnaul, 5.–6.vii.1967, leg. V. Zouhar (SDEI)

271. *Monopis barbarosi* (Koçak, 1981)
♀, Portugal: Madeira Island (holotype) [published by permission of the Natural History Museum, London]

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Plate 8: Figs 272–284, 224, correction of Fig. 158 (From Vol. 7): 4.0 times natural size

272. *Monopis fenestratella* (Heyden, 1863)
♀, Germany: Sömmerda, 10.vi.1938, leg. Martini (SDEI)

273. *Monopis monachella* (Hübner, 1796)
♂, Germany: Friedland, leg. Stange (SDEI)

274. *Pelecystola fraudulentella* (Zeller, 1852)
a) ♂, Slovakia: Lehota pod Vtáčnikom, 9.vi.2000, leg. I. Richter (coll. Richter) (according to Gaedike & Tokár, 2010)
b) ♀, Slovakia: Lehota pod Vtáčnikom, 9.vi.2000, leg. I. Richter (coll. Richter) (according to Gaedike & Tokár, 2010)
c) ♂, antenna, Slovakia: Lehota pod Vtáčnikom, 9.vi.2000, leg. I. Richter (coll. Richter) (according to Gaedike & Tokár, 2010)

275. *Opogona sacchari* (Bojer, 1856)
♂, Luxemburg: Vichten, 20.viii.2006, leg. Goethals (SDEI)

276. *Opogona omoscopa* (Meyrick, 1893)
♀, Spain: Canary Island, La Palma, Fuente Nueva, Barranco de la Fuente, 3.viii.2011, leg. A. Kopp (SDEI)

277. *Wegneria panchalcella* (Staudinger, 1871)
♂, Spain: Canary Island, Fuerteventura, Ajuy, 13.iv.2013, leg. A. Stübner (SDEI)

278. *Oinophila v-flava* (Haworth, 1828)
a) ♂, Austria: Wien, emerged VIII, coll. Krone (SDEI)
b) ♀, Spain: Canary Island, Tenerife, Guimar, 26.xi.–2.xii.2011, leg. A. Stübner (SDEI)

279. *Oinophila nesiotes* Walsingham, 1908
♂, Spain: Canary Island, Tenerife, 2km S Aguamanza, 15.ix.2014, 1800m, leg. A. Stübner (SDEI)

280. *Amphixystis undosa* (Walsingham, 1908)
♂, Spain: Canary Island, Tenerife, Guimar, ex l. 20.iii.1965, leg. Klimesch (ZSM)

281. *Teichobia filicivora* (Meyrick, 1937)
♀, Portugal: Madeira, Encumeada, 1000m, 15.vi.1993, leg. O. Karsholt (ZMUC)

282. *Teichobia verhuella* (Bruand, [1854])
♀, Switzerland: BE Twann, Rappenflue, ex l. *Asplenium trichomanes*, 22.iv.2011, leg.R. Bryner (SDEI)

283. *Stathmopolitis tragocoprella* Walsingham, 1908
♂, Spain: Canary Island, La Palma, Todoque, Casa Victoria, 28.v.2016, leg. A. Werno (coll. Werno)

284. *Tinea hongorella* Zagulajev, 1975
♂, Russia: S-Ural, Chelyabinsk district, near Moskovo village, 10.vii.1997, leg. K. Nupponen & J. Junnilainen (coll. Junnilainen)

224. *Elatobia montelliella* (Schantz, 1951)
♀, Canada: Alberta, Kootenay Plains, 20.viii. 2009, J. J. & S. Dombroskie leg. (According to Landry *et al.*, 2013)

158. *Infurcitinea romanica* Capuşe, 1966
♀, Bulgaria: Pirin Mts, Oreliak, 1650–1950m, 9.viii.2013, leg. O. Karsholt & B. Zlatkov (SDEI)

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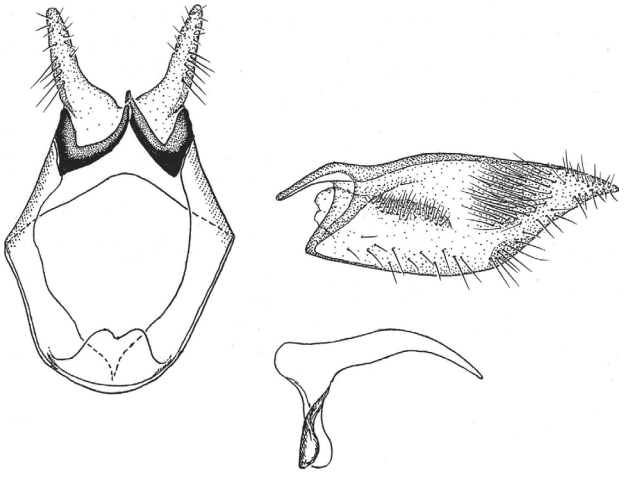
CHAPTER 5

Drawings, Male Genitalia



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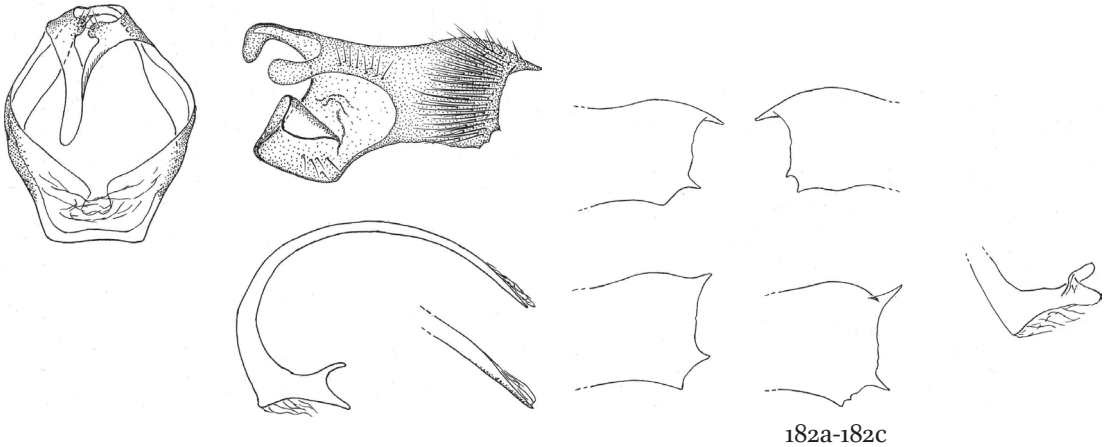

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182a-182c

181. *Pachyarthra mediterraneae* (Bethune-Baker, 1894) – Morocco – slide 1003 GP (SDEI)

182. *Myrmecozela ochraceella* (Tengström, 1848) – Sweden – slide 7956 RG [tip of phallus in higher magnification] (SDEI);
a) Sweden – slide 7955 RG [right and left valva] (SDEI); b) Switzerland – slide 7913 RG (SDEI); c) Switzerland – slide 362 GP [valva, basal part of phallus] (SDEI)

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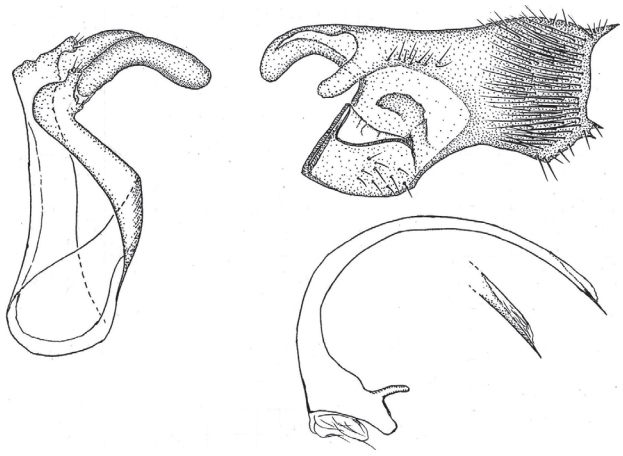

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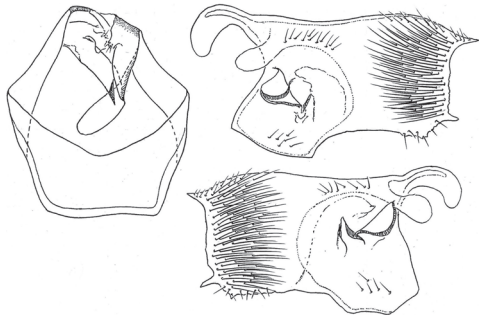
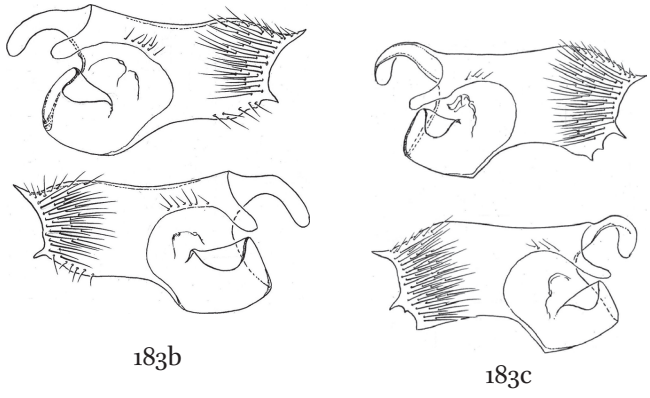


183a



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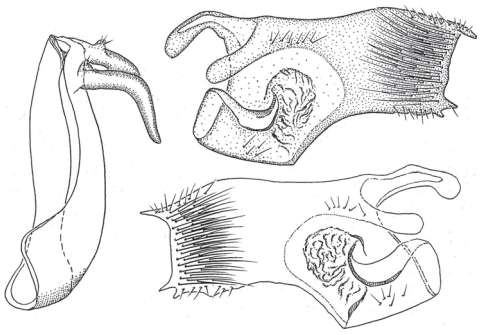
183. *Myrmecozela lutosella* (Eversmann, 1844) – Kirgizia – slide 4848 RG [tip of phallus in higher magnification] (SDEI);
a) Kazakhstan – slide 3119 GP [uncus-tegumen-vinculum complex in ventral view] (SDEI); b) Kazakhstan – slide 229 PG (SDEI); c) Russia – slide 10050 ZAG (ZIN)



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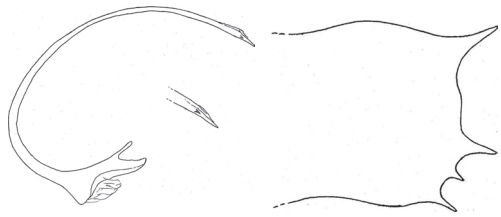

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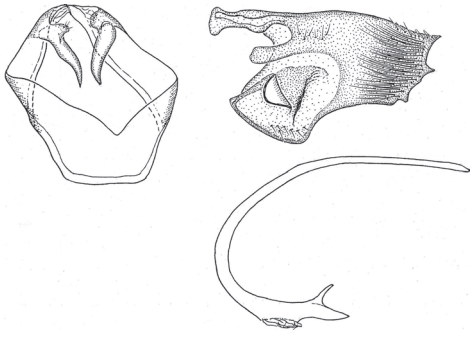

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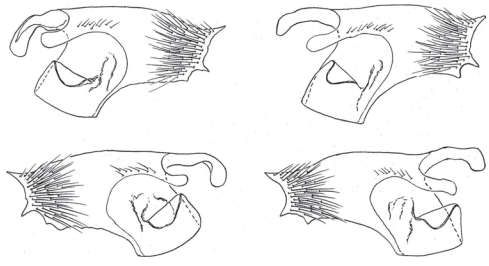

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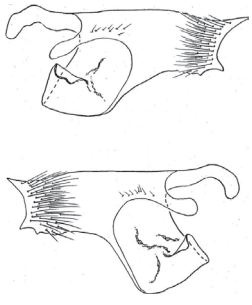

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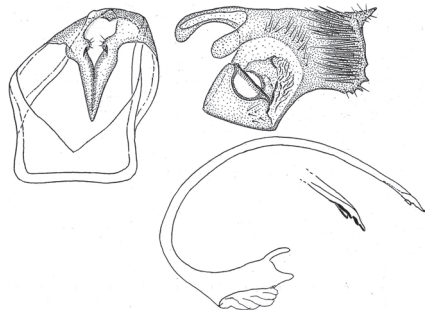

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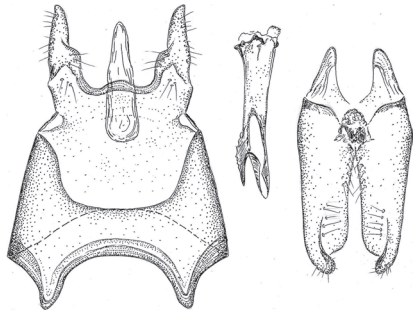
184. *Myrmecozela diacona* Walsingham, 1907 – without location – slide 7918 RG [tip of phallus in higher magnification] (SDEI);
a) Morocco – slide 2032 GP (SDEI)

185. *Myrmecozela ataxella* (Chrétien, 1905) – Spain – slide 7919 RG (SDEI);
a) Spain – slide 8010 RG (SDEI); b) Spain – slide 8147 RG (SDEI); c) Bulgaria – slide 8142 RG (SDEI)

186. *Myrmecozela lambessella* Rebel, 1901 – Spain – slide 189 GP [tip of phallus in higher magnification] (SDEI) [ssp. *cuencella*]



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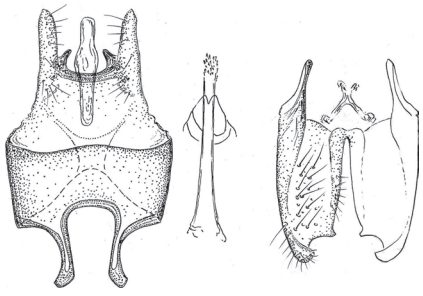

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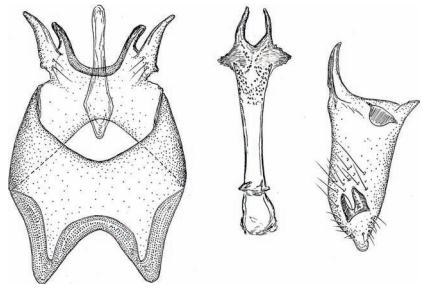

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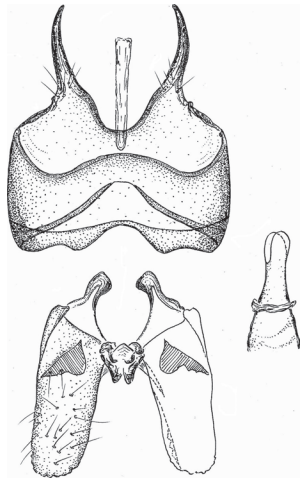
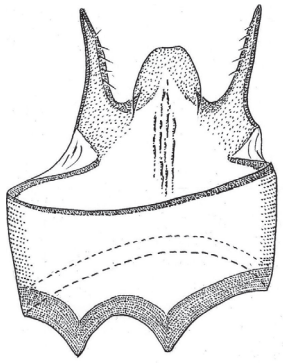


190

187. *Ateliotum hungaricellum* Zeller, 1839 – Greece – slide 3325 GP (SDEI) (according to Petersen, 1988b)
188. *Ateliotum petrinella* (Herrich-Schäffer, 1854) – Spain – slide 3290 GP (SDEI) (according to Petersen, 1988b)
189. *Ateliotum insularis* (Rebel, 1896) – Spain – slide 1715 RG (SDEI) (according to Petersen, 1988b)
190. *Ateliotum syriaca* (Caradja, 1920) – Lebanon – slide 3323 GP (SDEI) (according to Petersen, 1988b)
191. *Ateliotum arenbergeri* Petersen & Gaedike, 1985 – Cyprus – slide 3324 GP (SDEI)



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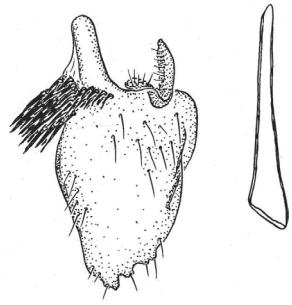

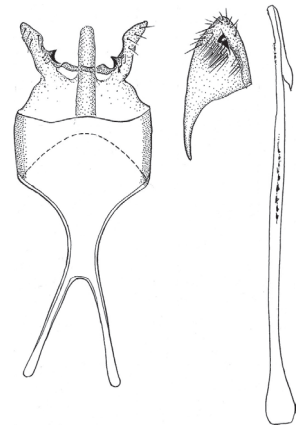

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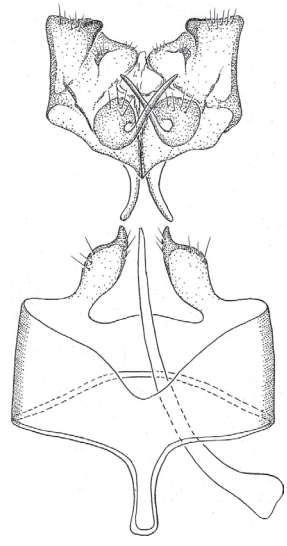

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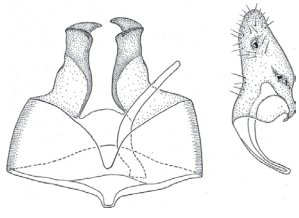

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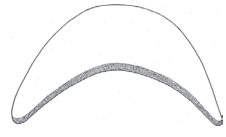
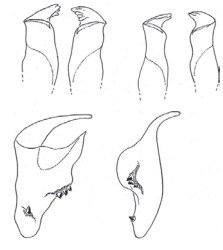


194a

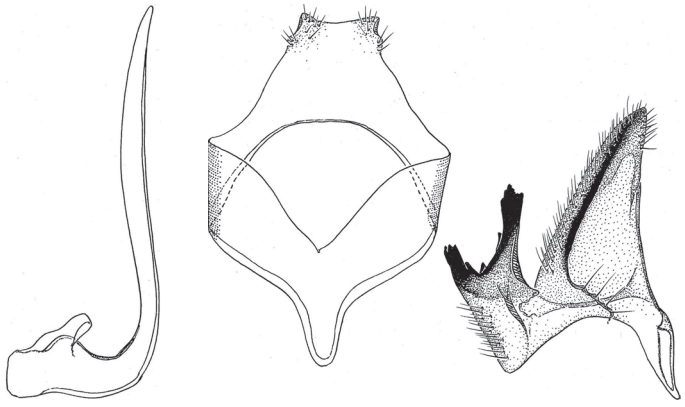


194b, 194c

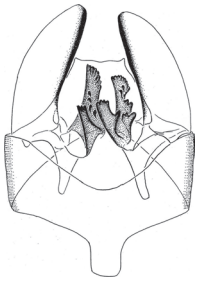
192. *Ateliotum larseni* Gaedike, 2011 – Canary Island: Gran Canaria – slide 7312 RG (SDEI) (according to Gaedike, 2011a)

193. *Haplotinea ditella* (Pierce & Diakonoff, 1938) – Denmark – slide 8104 RG (SDEI)

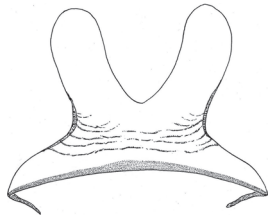
194. *Haplotinea insectella* (Fabricius, 1794) – Germany – slide 6691 RG (SDEI);
a) sternite VIII: same slide; b) Germany – slide 7957 RG (SDEI); c) Bosnia – slide 342 GP (SDEI)



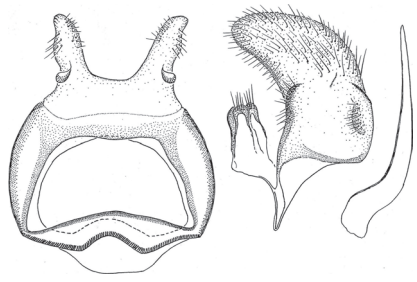
195



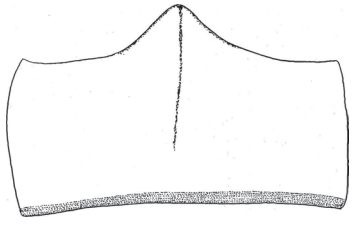
195a



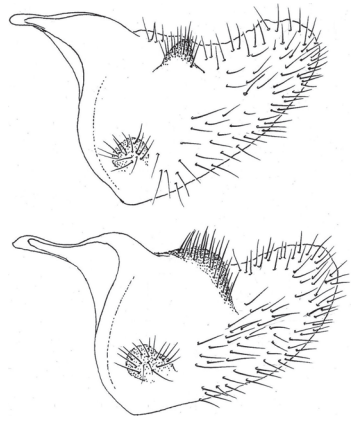
195b



196



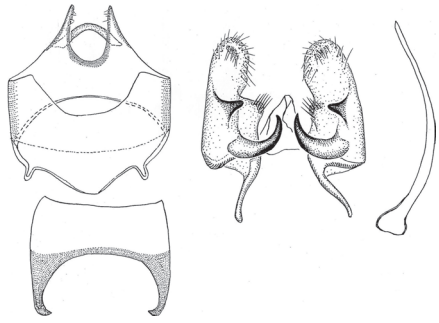
196a



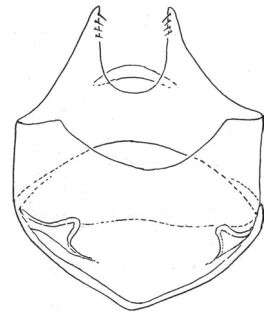
196b, 196c

195. *Cephimallota praetoriella* (Christoph, 1872) – Turkey – slide 8465 RG (SDEI);
a) sternite VIII: same slide; b) Russia – slide 332 GP (SDEI)

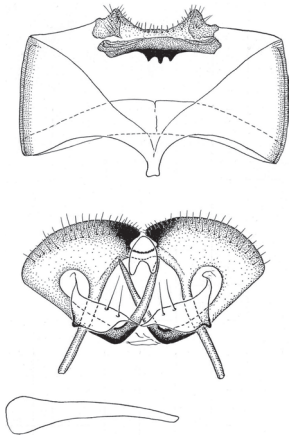
196. *Cephimallota colonella* (Erschoff, 1874) – Japan – slide 8467 RG (SDEI);
a) sternite VIII: same slide; b) China – slide 3124 GP (SDEI); c) Kazakhstan – slide 791 GP (SDEI)



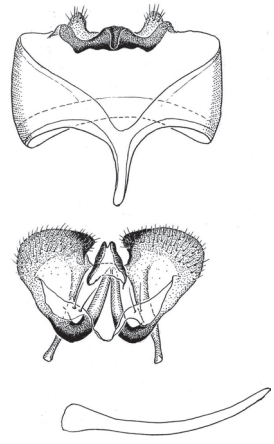
197



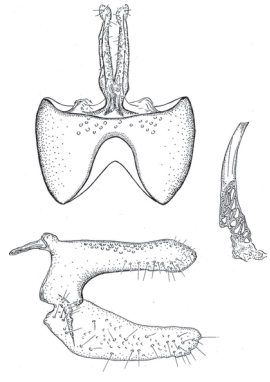
197a



198



199



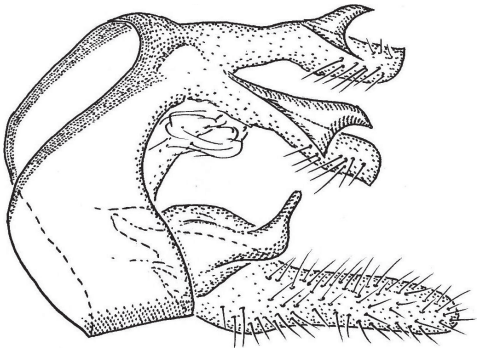
200

197. *Cephimallota tunesiella* (Zagulajev, 1966) – Turkey – slide 8428 RG (SDEI);
a) Uncus-tegumen-vinculum: Greece: Crete – slide 6582 RG (SDEI)

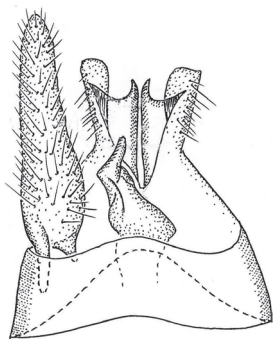
198. *Cephimallota crassiflavella* Bruand, 1851 – France – slide 6984 (uncus-tegumen-vinculum) 6983 (valvae, phallus) RG (SDEI) (according to Gaedike & Mally, 2011)

199. *Cephimallota angusticostella* (Zeller, 1839) – Bulgaria – slide 6981 RG (SDEI) (according to Gaedike & Mally, 2011)

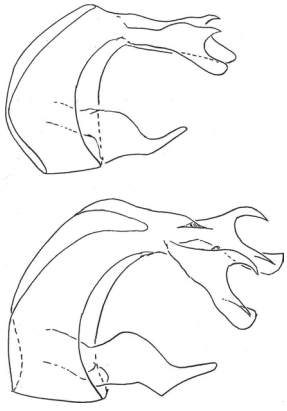
200. *Edosa fuscoviolacella* (Ragonot, 1895) – Jordania – slide 2817 GP (SDEI) (according to Petersen & Gaedike, 1984)



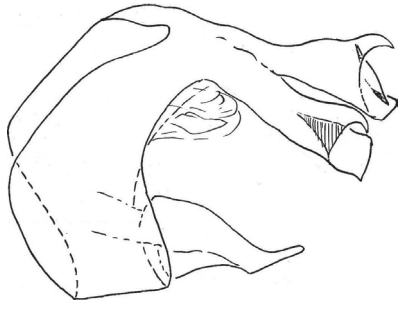
201



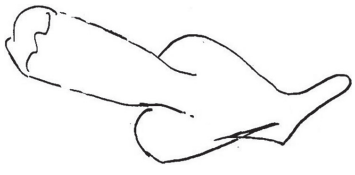
201a



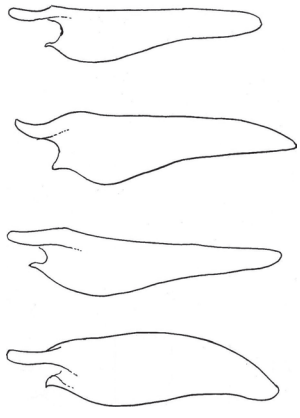
201b, 201c



201d

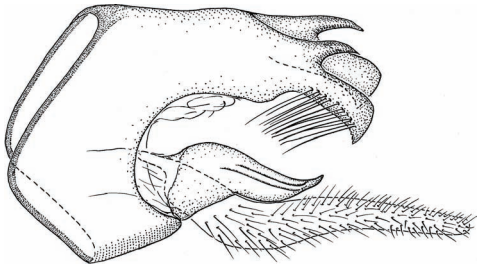


201e

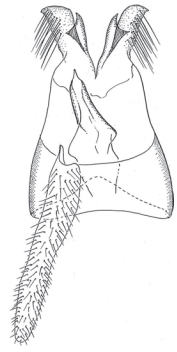


201f-201i

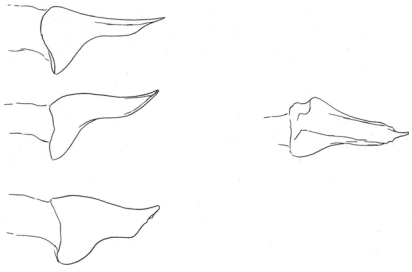
201. *Crassicornella crassicornella* (Zeller, 1847) – Greece: Crete – slide 2856 GP (SDEI) ventro-dorsal view: a) Greece – slide 326 GP (SDEI); lateral view: b) Greece – slide 1752 GP (SDEI); c) Italy: Sicily – slide 328 GP (SDEI); d) Greece – slide 2906 GP (SDEI); phallus, lateral view: e) Greece: Crete – slide 2858 GP (SDEI); valva: f) Greece: Crete – slide 2855 GP (SDEI); g) Greece: Crete – slide 2857 GP (SDEI); h) Albania – slide 2865 GP (SDEI); i) Greece: Rhode – slide 2769 GP (SDEI)



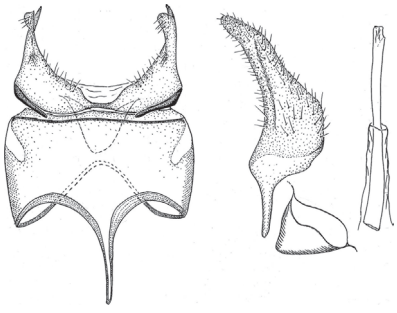
202



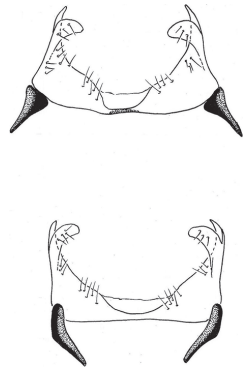
202a



202b-202e



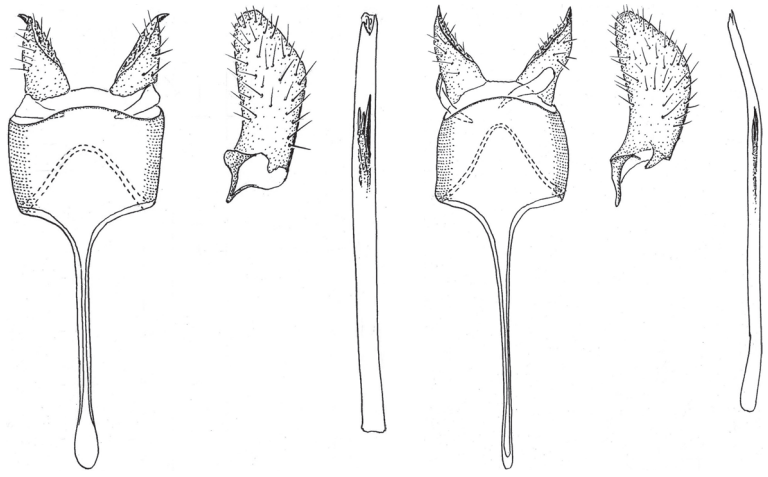
203



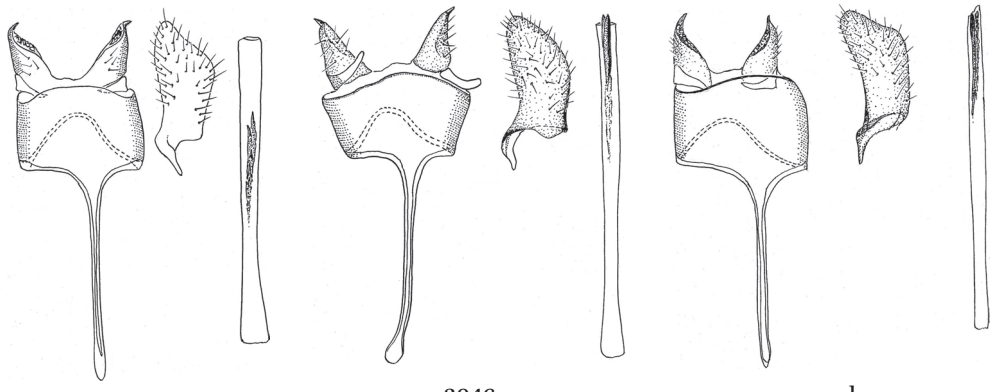
203a, 203b

202. *Crassicornella agenjoi* (Petersen, 1957) – Algeria – slide 1754 GP (SDEI);
a) Tunisia – slide 324 GP (SDEI); b) Tunisia – slide 3889 RG (SDEI); c) Spain – slide 407 GP (SDEI);
d) Algeria – slide 1753 GP (SDEI); e) Spain – slide 1099 GP (SDEI)

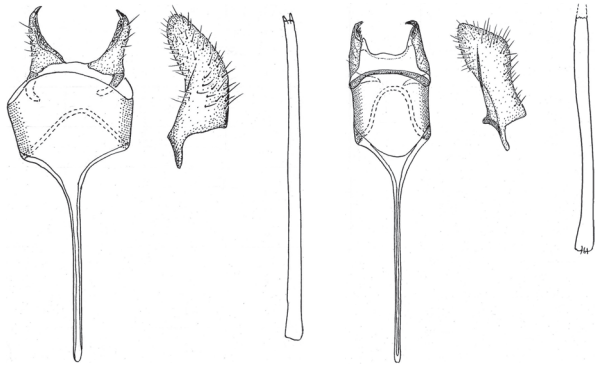
203. *Ceratuncus danubiella* (Mann, 1866) – Greece – slide 8491 RG (SDEI) Uncus, gnathos arms:
a) without location – slide 151 GP (SDEI); b) Turkey – slide 364 GP (SDEI)



204 204a

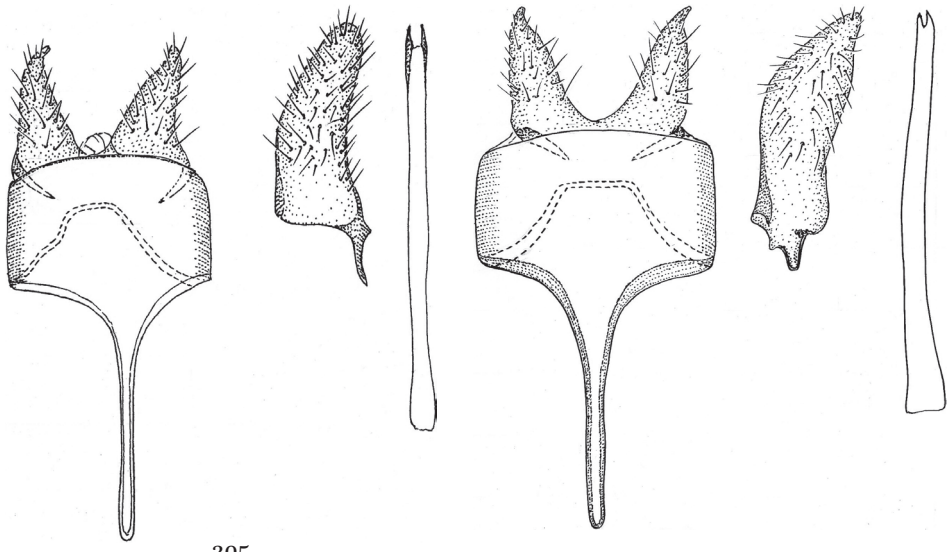


204b 204c 204d

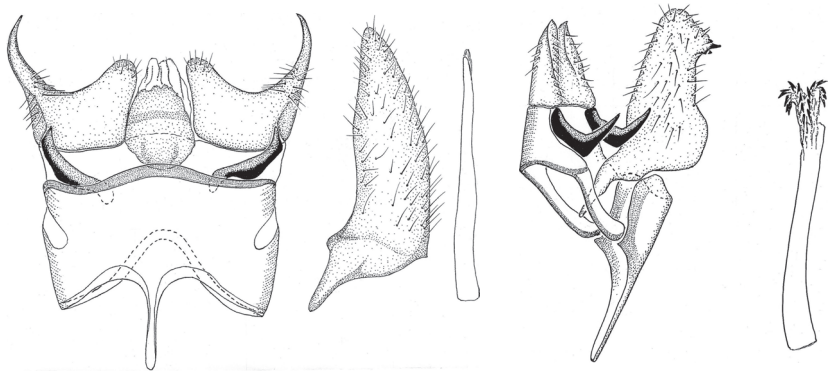


204e 204f

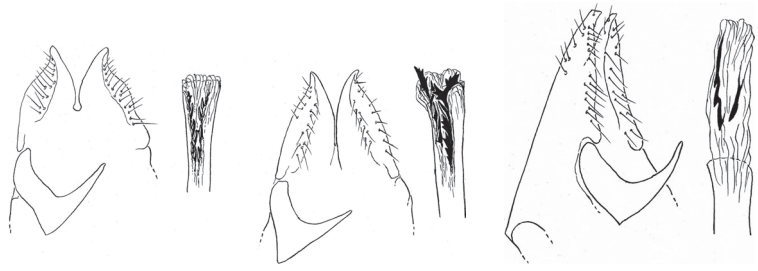
204. *Ceratuncus maroccanella* (Amsel, 1951) – Morocco – slide 2994 GP (SDEI);
a) Morocco – slide 8499 RG (ZSM); b) Morocco – slide 3064 GP (SDEI); c) Spain – slide 4048 RG (RMNH); d) Morocco – slide 8618 RG (ZMUC); e) Portugal – slide 2328 MC (coll. Corley);
f) Morocco – slide 862 HGA (SMNK) (holotype)



205 205a



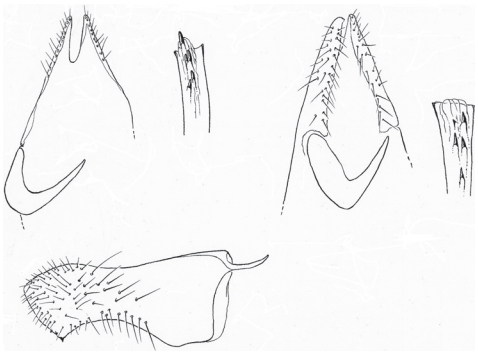
206 207



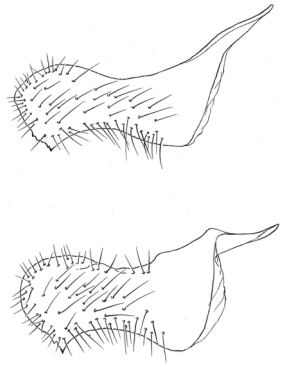
207a, 207b 207c

205. *Ceratuncus dzhungaricus* Zagulajev, 1971 – Kazakhstan – slide 11117 ZAG (ZIN)(holotype);
a) Kazakhstan – slide 3062 GP (SDEI)

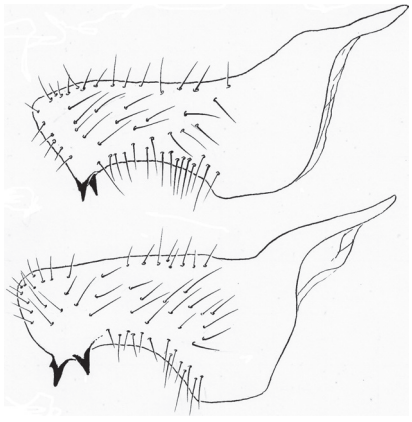
207. *Reisserita zernyi* Petersen, 1957 – Spain – slide 1668 GP (SDEI); Uncus-tegumen, phallus, valva in higher magnification:
a), h) Spain – slide 3223 GP (SDEI); b), i) Spain – slide 3314 GP (SDEI); c), g) Spain – slide 1675 GP (SDEI); d) Portugal – slide 5577 RG (coll. Baisch); e), f): Spain – slide 1674 GP (SDEI)



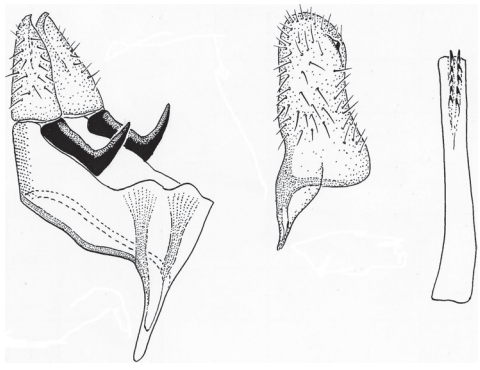
207d, 207e



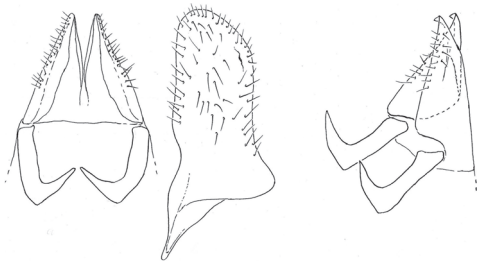
207f, 207g



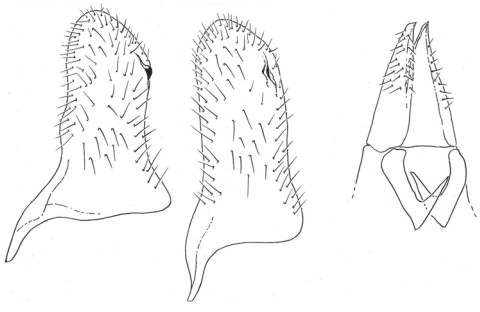
207h, 207i



208

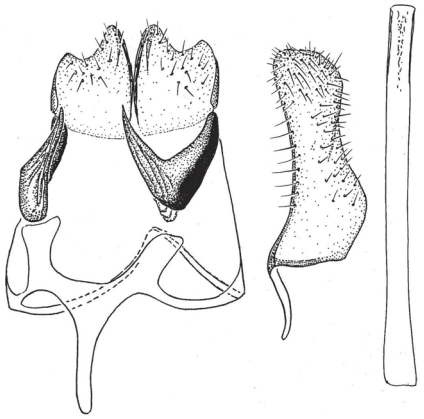


208a, 208b, 208c

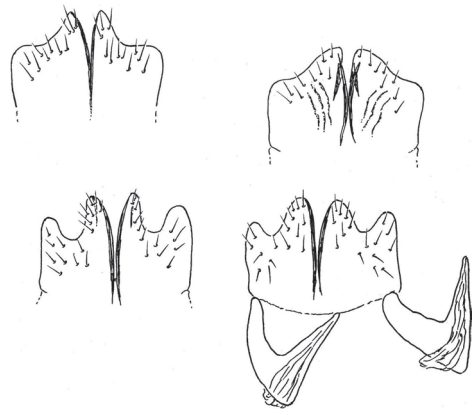


208d, 208e, 208f

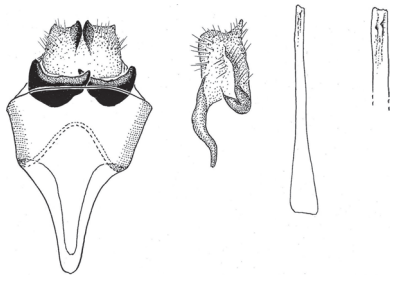
208. *Reisserita haasi* (Rebel, 1901) – Spain – slide 1518 GP (SDEI); Uncus and gnathos arms, valva in higher magnification: Spain:
a) – slide 301 GP (SDEI); b) – slide 7072 RG (SDEI); c) – slide 1734 RG (SDEI); d) – slide 1672 GP (SDEI); e) – slide 1671 GP (SDEI); f) – slide 3287 GP (SDEI)



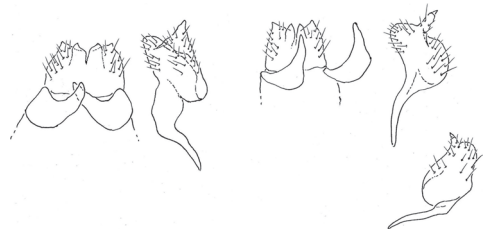
209



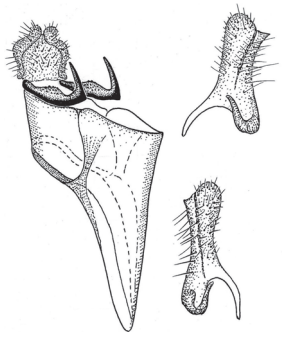
209a-209d



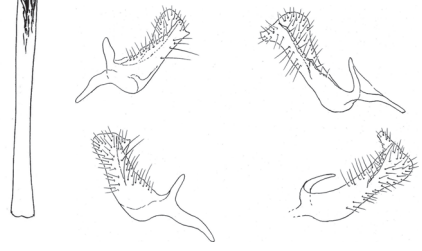
210



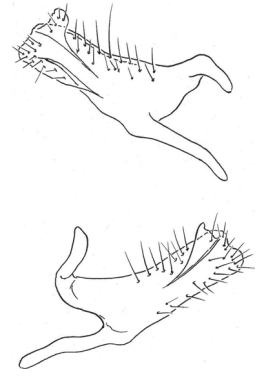
210a, 210b



211



211a, 211b

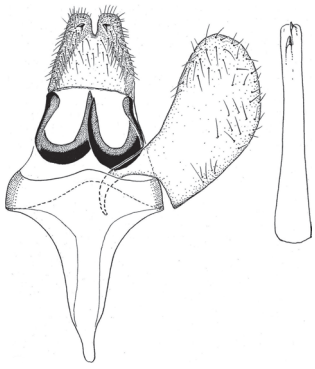


211c

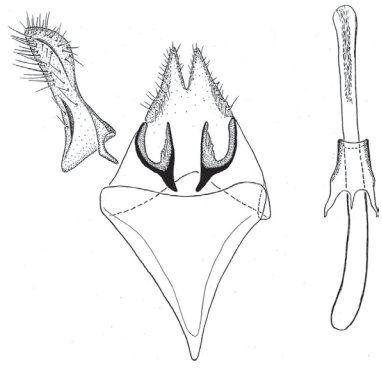
209. *Reisserita chrysopterella* (Herrich-Schäffer, 1854) – Spain – slide 8495 RG (SDEI); Uncus: a) Spain – slide 7454 RG (coll. Bettag); b) Portugal – slide 5443 RG (SDEI); c) Spain – slide 253 GP (SDEI); d) Spain – slide 1118 GP (SDEI)

210. *Reisserita parva* Petersen & Gaedike, 1979 – Spain – slide 1735 (apex of phallus in higher magnification) RG (SDEI); a) Spain – slide 3293 GP (SDEI); b) Spain – slide 8496 RG (SDEI)

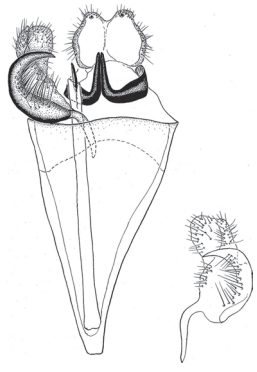
211. *Reisserita latiusculella* (Stainton, 1867) – Israel – slide 8497 RG (SDEI); Valvae in higher magnification: a) Turkey – slide 1723 RG (SDEI); b) Israel – slide 5200 RG (SDEI); c) Lebanon – slide 267 GP (SDEI)



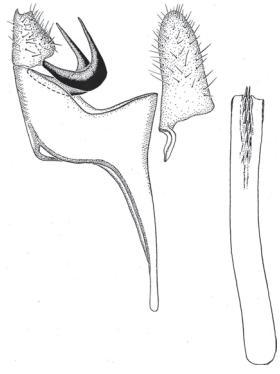
212



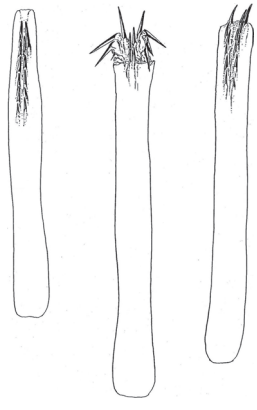
213



214

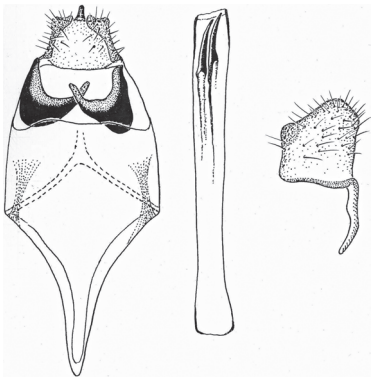


216

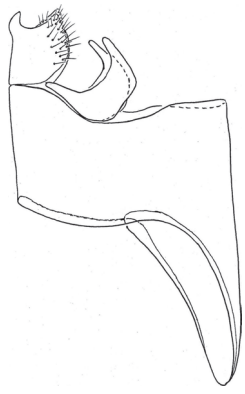


216a-216c

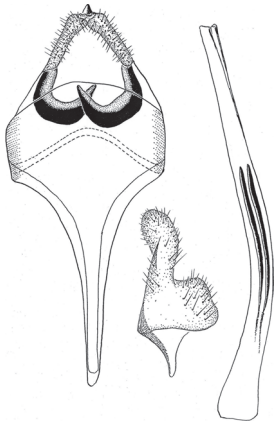
212. *Reisserita panormitanella* (Mann, 1859) – Algeria – slide 6460 RG (MNHN)
213. *Reisserita relicinella* (Herrich-Schäffer, 1853) – Croatia – slide 6528 RG (SDEI)
214. *Reisserita mauritanica* (Bethune-Baker, 1885) – Malta – slide 5504 RG (SDEI)
216. *Anomalotinea liguriella* (Millière, 1879) – Turkey – slide 5619 RG (SDEI);
a) Spain – slide 7604 RG (SDEI); b) Croatia – slide 1710 RG (SDEI); c) Bulgaria – slide 8291 RG (SDEI)



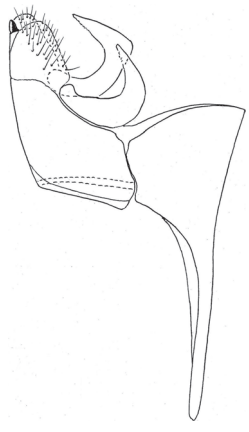
217



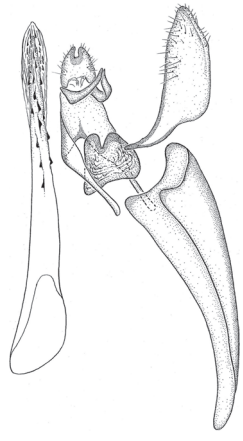
217a



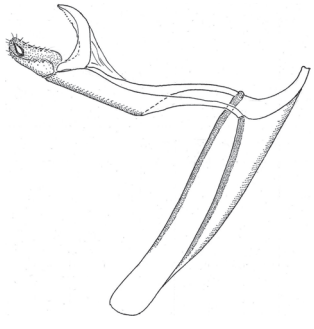
218



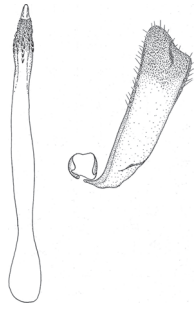
218a



219



220



220a

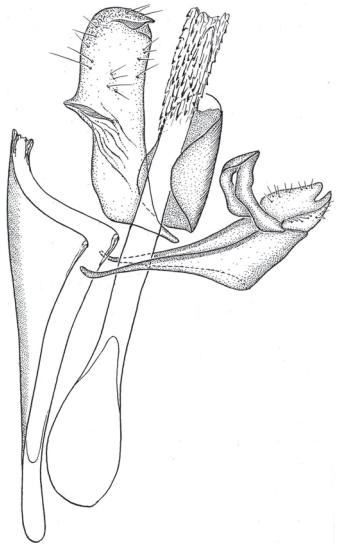
217. *Anomalotinea gardesanella* (Hartig, 1950) – Greece – slide 8548 RG (SDEI);
a) lateral view: Croatia – slide 132 PG (SDEI)

218. *Anomalotinea cubiculella* (Staudinger, 1859) – Spain – slide 1677 GP (SDEI);
a) lateral view: Spain – slide 1676 GP (SDEI)

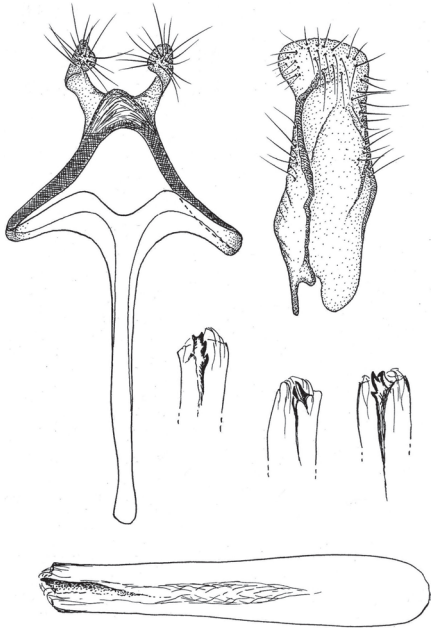
219. *Trichophaga tapetzella* (Linnaeus, 1758) – without location – slide 334 GP (SDEI)
(according to Gaedike & Karsholt, 2001)

220. *Trichophaga scandinaviella* Zagulajev, 1960 – Finland – slide 8563 RG (FMNH)

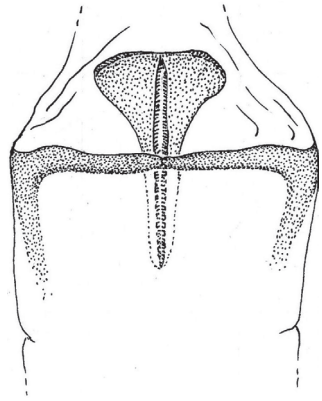
221



222



223, 223a-223c

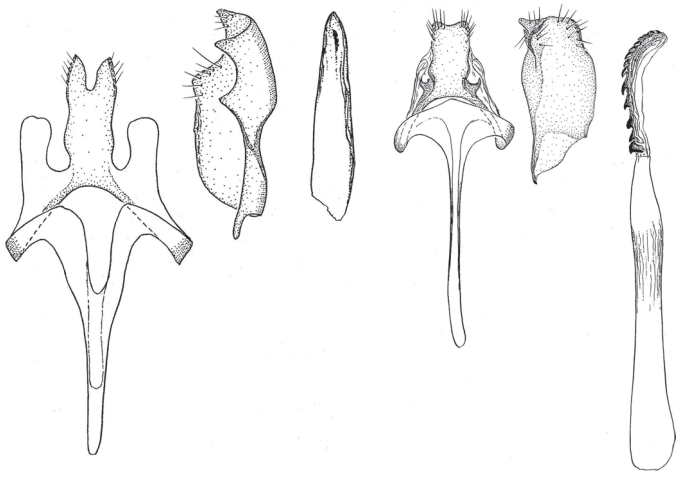


223d

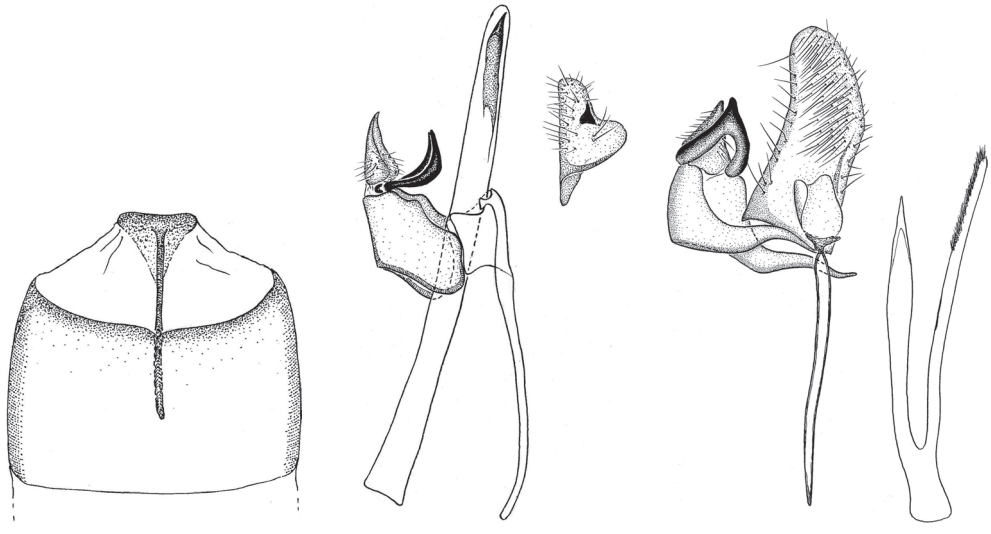
221. *Trichophaga bipartitella* (Ragonot, 1892) – Madeira – slide 4719 RG (ZMUC) (according to Gaedike & Karsholt, 2001)

222. *Trichophaga robinsoni* Gaedike & Karsholt, 2001 – Canary Island: Gran Canaria – slide 1993 RG (SMNK) (according to Gaedike & Karsholt, 2001)

223. *Elatobia fuliginosella* (Zeller, 1846) – Iran – slide 6342 RG (IRIPP); Tip of phallus: a) France – slide 315 GP (SDEI); b) Germany – slide 391 GP (SDEI); c) Russia – slide 4843 RG (SDEI); segment VIII: d) Russia – slide 4843 RG (SDEI)

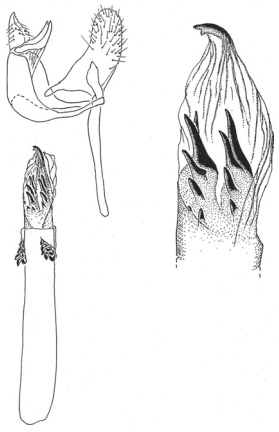


224 225

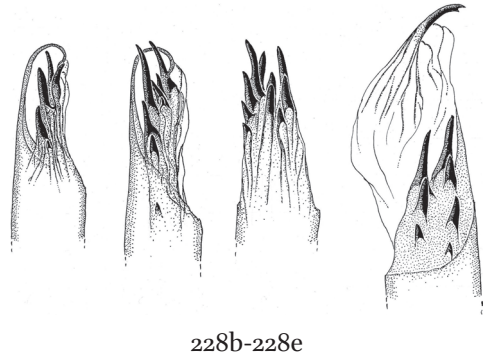


225a 226 227

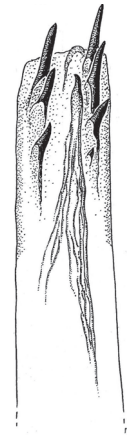
224. *Elatobia montelliella* (Schantz, 1951) – Finland – slide Sch (remounted RG) (FMNH)
225. *Elatobia bugrai* Kocak, 1981 – Greece – slide 7318 RG (coll. Roweck)(according to Gaedike, 2011a); a) segment VIII, same slide
226. *Tineola bisselliella* (Hummel, 1823) – Germany – slide 319 GP (SDEI)
227. *Praeacedes atomosella* (Walker, 1863) – Canary Island: Tenerife – slide 1717 RG (SDEI); Cyprus – slide 1708 (phallus) GP (SDEI) (according to Gaedike & Karsholt, 2001)



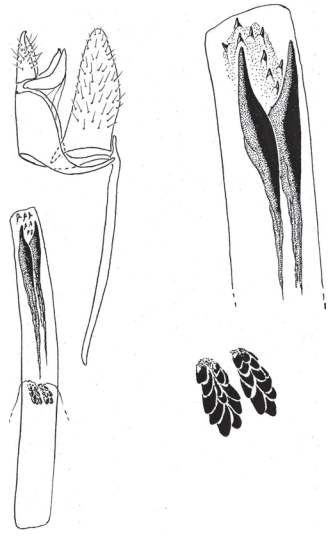
228, 228a



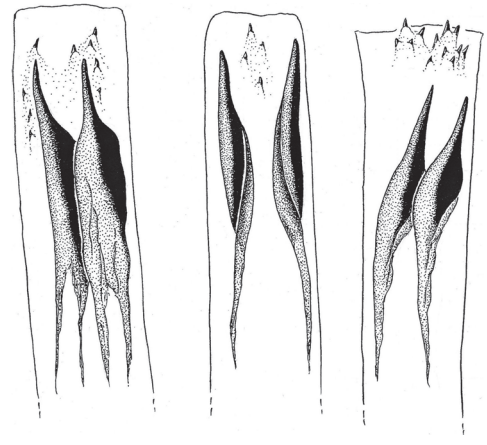
228b-228e



228f



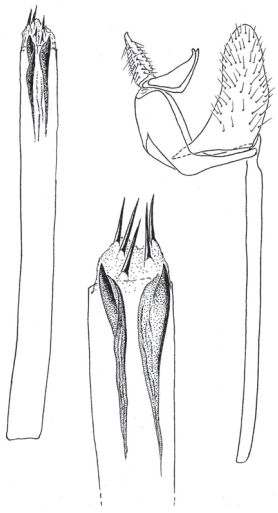
229, 229a



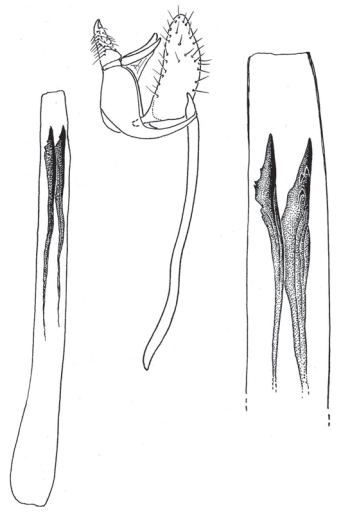
229b-229d

228. *Tinea flavescentella* Haworth, 1828 – Germany – slide 1486 GP (SDEI) Phallus in higher magnification:
a) same slide; b) Germany – slide 1144 GP (SDEI); c) Greece – slide 8551 RG (SDEI); d) Germany – slide 1373 GP (SDEI); e) Germany – slide 2812 GP (SDEI); f) U.K. – slide 13322 GSR (BMNH)

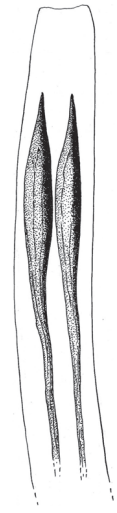
229. *Tinea pellionella* Linnaeus, 1758 – Germany – slide 3260 GP (SDEI) Phallus and anellus in higher magnification:
a) same slide; Phallus in higher magnification: b) Germany – slide 232 GP (SDEI);
c) Germany – slide 1377 GP (SDEI); d) Germany – slide 2313 GP (SDEI)



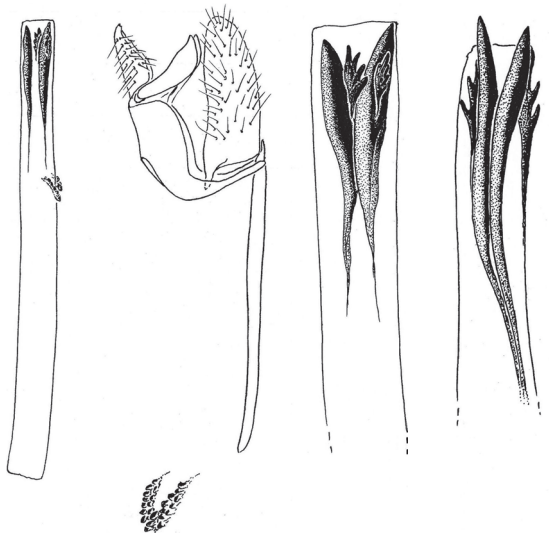
230, 230a



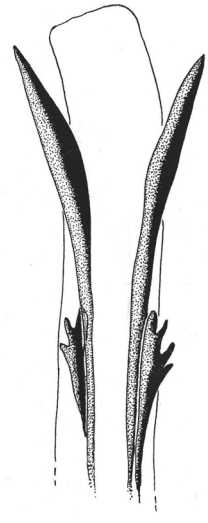
231, 231a



231b



232, 232a

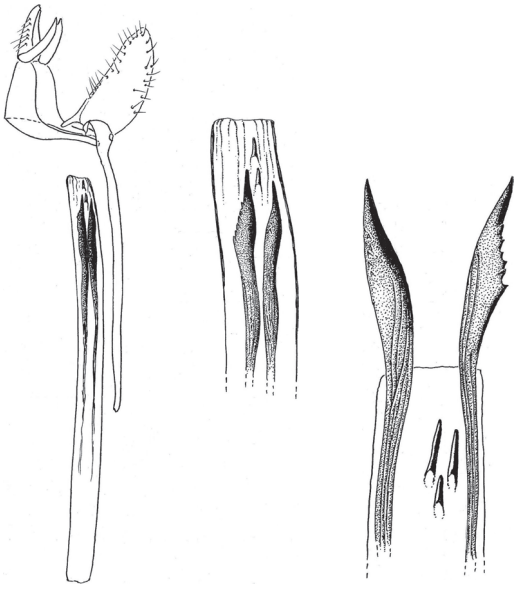


232b-232c

230. *Tinea translucens* Meyrick, 1917 – Albania – slide 1655 GP (SDEI);
a) Phallus in higher magnification: same slide

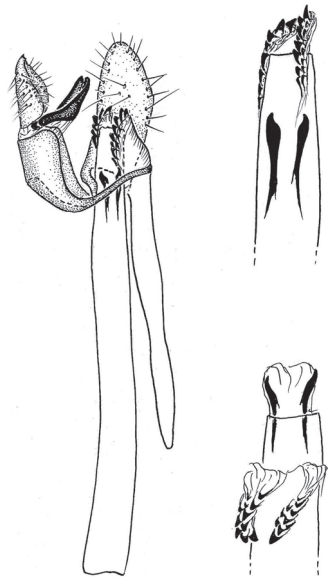
231. *Tinea murariella* Staudinger, 1859 – Algeria – slide 997 GP (SDEI); Phallus in higher magnification:
a) same slide; b) France – slide 12181 GSR (BMNH)

232. *Tinea lanella* Pierce & Metcalfe, 1934 – Spain – slide 1128 GP (SDEI); Phallus in higher magnification:
a) same slide; b) U.K. – slide 3204 FNP (BMNH); c) U.K. – slide 3203 FNP (BMNH)

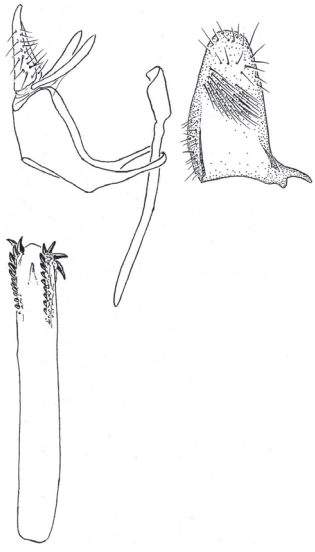


233, 233a

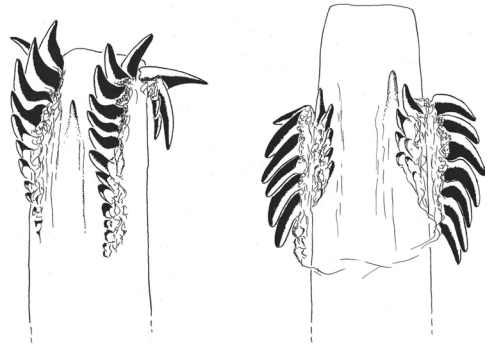
233b



234, 234a-234b



235

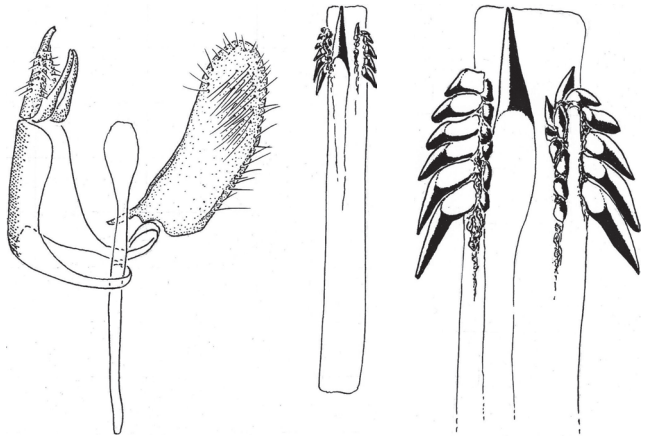


235a, 235b

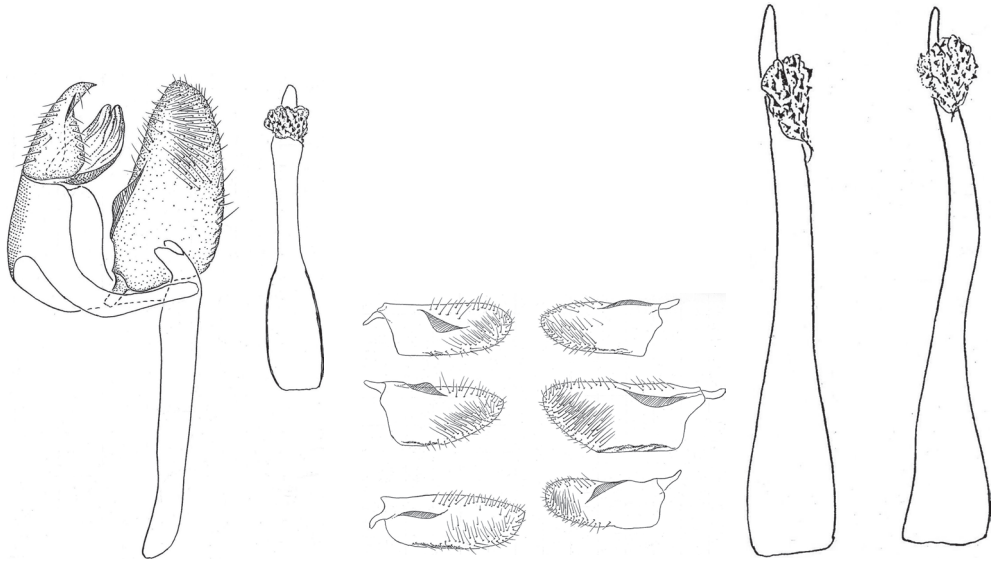
233. *Tinea messalina* Robinson, 1979 – Greece – slide 6223 RG (coll. Baisch); Phallus in higher magnification:
a) same slide; b) Italy – slide 8214 GSR (BMNH)

234. *Tinea dubiella* Stainton, 1859 – Germany – slide 2406 GP (SDEI) (according to Gaedike & Karsholt, 2001); Phallus in higher magnification:
a) same slide; b) Germany – slide 1164 GP (SDEI) (according to Gaedike & Karsholt, 2001)

235. *Tinea steueri* Petersen, 1966 – Germany – slide 2860 GP (SDEI); Phallus in higher magnification:
a) same slide; b) Germany – slide 3006 GP (SDEI)



236 236a

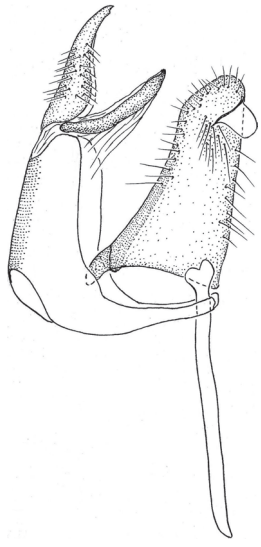


237 237a-237f 237g-237h

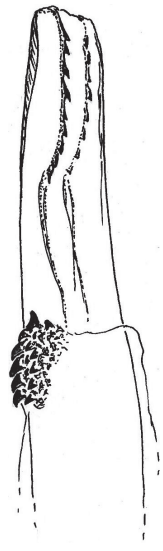
236. *Tinea bothniella* Svensson, 1953 – Finland – slide 8557 RG (SDEI); a) Phallus in higher magnification: same slide

237. *Tinea basifasciella* Ragonot, 1895 – Spain – slide 1747 RG (SDEI); Variability of valvae: a) Armenia – slide 7745 RG (SDEI); b) Croatia – slide 1711 RG (SDEI); c) Croatia – slide 5683 RG (SDEI); d) Spain – slide 5379 RG (SDEI); e) Canary Island: Tenerife – slide 3766 RG (SDEI); f) Greece – slide 7239 RG (SDEI); Phallus, lateral view: g) Spain – slide 263 GP (SDEI); h) Spain – slide 5379 RG (SDEI)

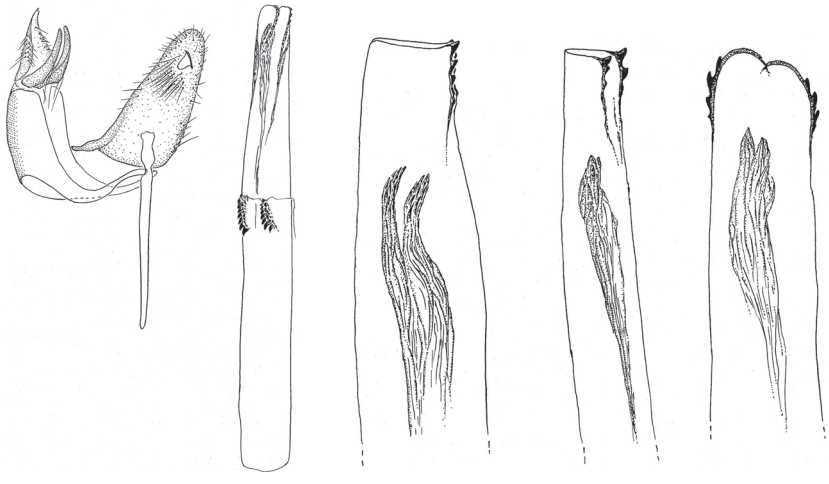
238



238



238a

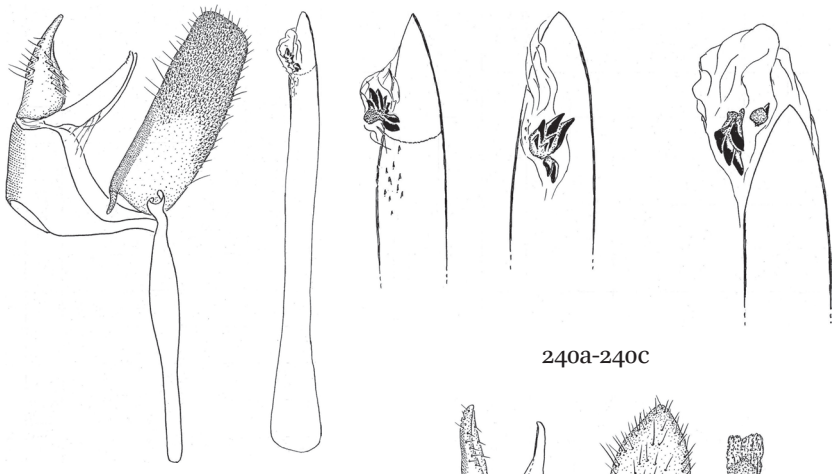


239

239a-239c

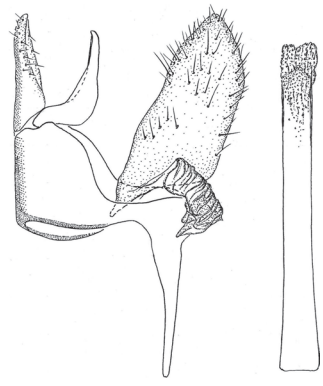
238. *Tinea columbariella* Wocke, 1877 – Italy – slide 2359 RG (SDEI) Phallus: Russia – slide 7394 – RG (SDEI); Tip of phallus:
a) Germany – slide 8553 RG (SDEI)

239. *Tinea svenssoni* Opheim, 1965 – Fennia – slide 8554 RG (SDEI); Tip of phallus, in higher magnification:
a), b), c) Finland – slides 2746, 8540, 8539 RG (SDEI)



240a-240c

240



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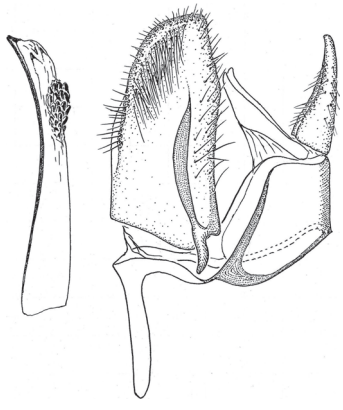

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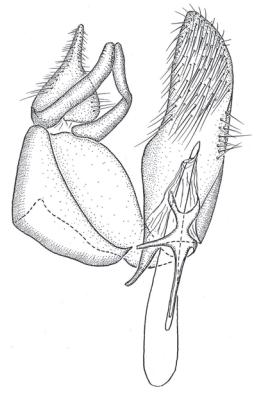


243

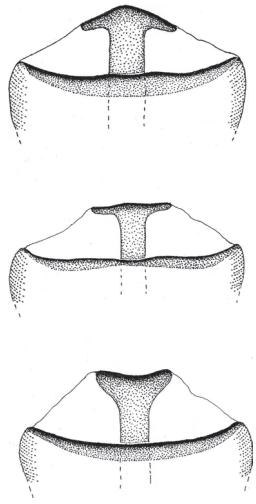
240. *Tinea pallescentella* Stainton, 1851 – Czech Republic – slide 8567 RG (SDEI); Phallus in higher magnification:
a) same slide; b) Germany – slide 239 GP (SDEI); c) Germany – slide 241 GP (SDEI)

241. *Tinea omichlopis* Meyrick, 1928 – Montenegro – slide 1714 GP (SDEI)

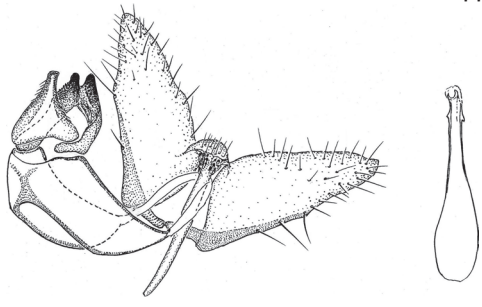
242. *Tinea semifulvella* Haworth, 1828 – Germany – slide 8572 RG (SDEI)

243. *Tinea trinotella* Thunberg, 1794 – Canary Island: Tenerife – slide 1997 RG (SDEI) (according to Gaedike & Karsholt, 2001)

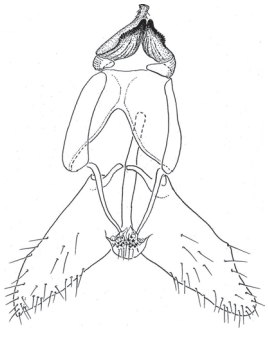
244



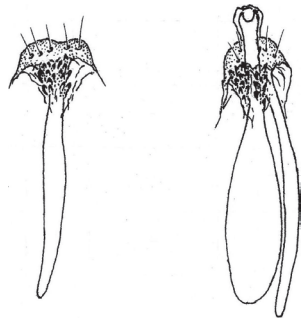
244a-244c



245



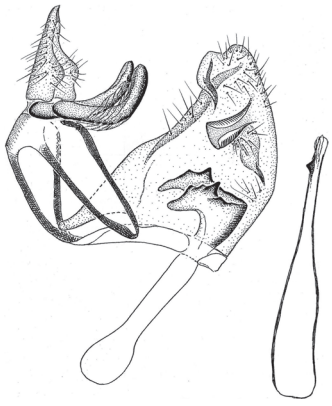
245a



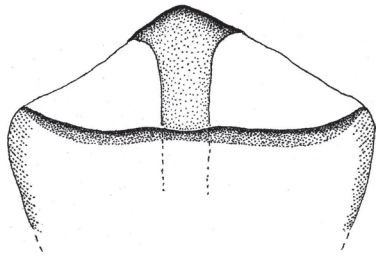
245b-245c

244. *Niditinea fuscella* (Linnaeus, 1758) – Portugal – slide 1881 GP (SDEI); Phallus: Germany – slide 260 GP (according to Gaedike & Karsholt, 2001); Segment VIII:
a) Germany – slide 349 GP (SDEI); b) Portugal – slide 1881 GP (SDEI); c) Afghanistan – slide 2470 GP (SDEI)

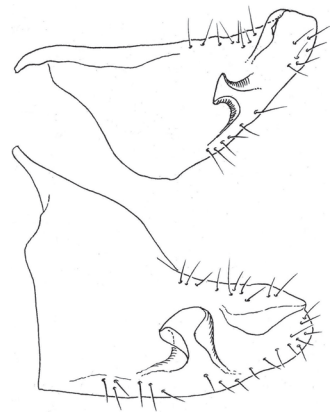
245. *Niditinea striolella* (Matsumura, 1931) – Italy – slide 8416 RG (SDEI);
a) without location – slide 854c KS (SDEI); Juxta-Anellus: b) Romania – slide 1470 GP (SDEI);
c) Russia Far East – slide 5091 RG (SDEI)



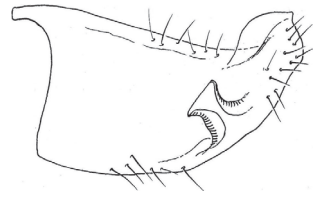
246



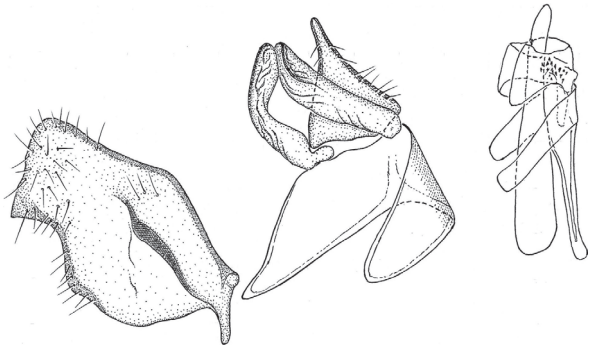
246a



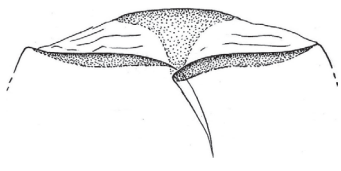
246b-246c



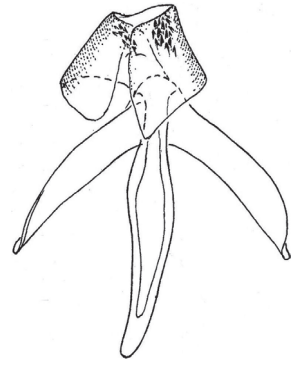
246d



247



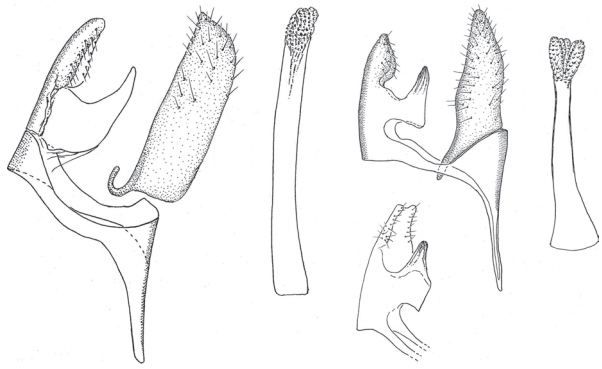
247a



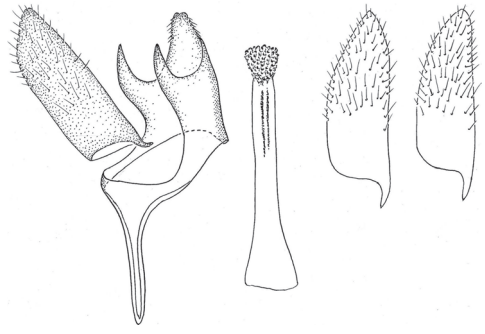
247b

246. *Niditinea baryspilas* (Meyrick, 1937) – Irak – slide 2841 GP (SDEI); Segment VIII: a) Japan – slide 1419 GP (SDEI); Valva: b) Iran – slide 6344 RG (IRIPP); c) Irak – slide 2842 GP (SDEI); d) Egypt – slide 5654 RG (SDEI)

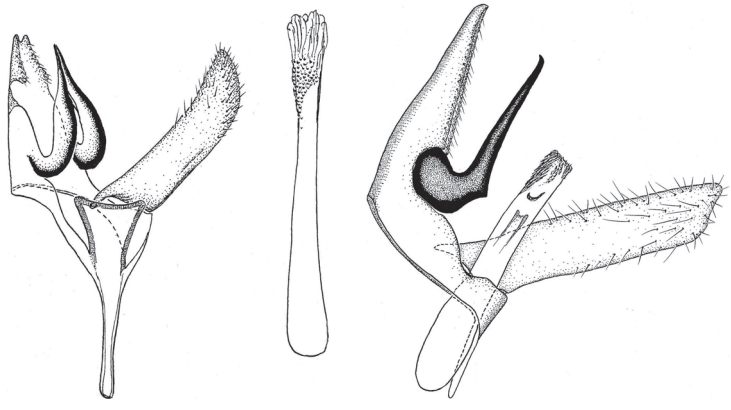
247. *Niditinea truncicolella* (Tengström, 1848) – Italy – slide 7544 RG (ZMHB); Segment VIII: a) same slide; Anellus-vinculum-saccus: b) Spain – slide 1947 GP (SDEI)



248 249, 249a

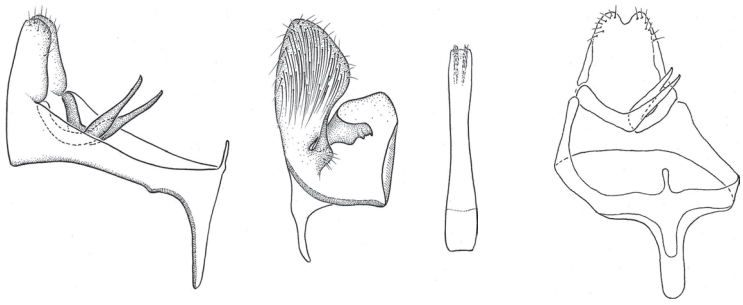


250, 250a, 250b

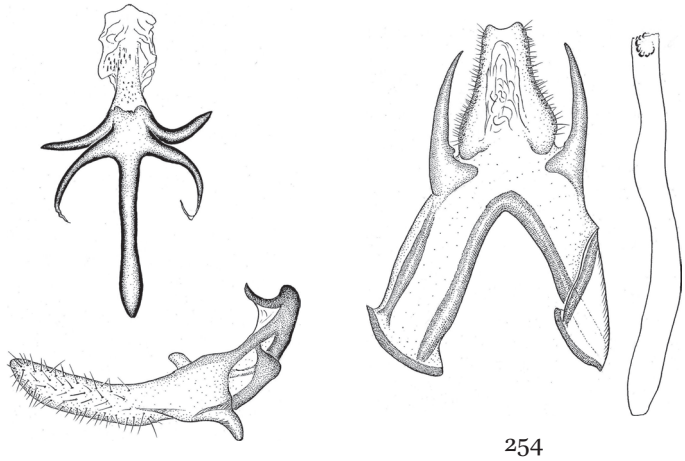


251 252

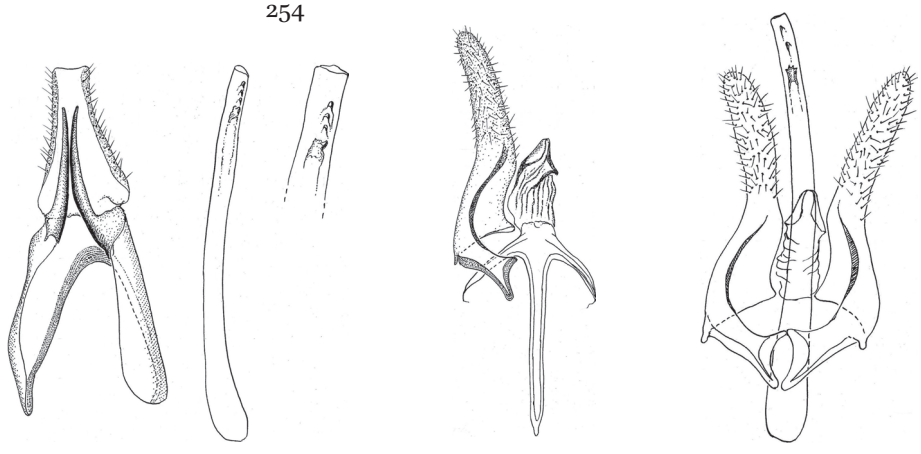
248. *Proterospastis merdella* (Zeller, 1852) – Syria – slide 6504 RG (SDEI)
249. *Proterospastis autochthones* (Walsingham, 1907) – Algeria – slide 903 GP (BMNH); a) Tunisia – slide 6469 RG (SDEI)
250. *Proterospastis orientalis* (Petersen, 1959) – Malta – slide 7187 RG (SDEI); a) Greece – slide 7517 RG (SDEI); b) Morocco – slide 8098 RG (coll. Werno)
251. *Ceratobia ratjadae* Passerin d'Entrèves, 1978 – Spain – slide 7559 RG (coll. Roweck)
252. *Ceratobia oxymora* (Meyrick, 1919) – Madeira – slide 4225 (BMNH) (according to Gaedike & Karsholt, 2001)



253 253a



254 254

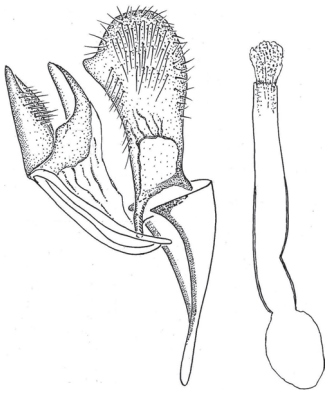


255 255 255a

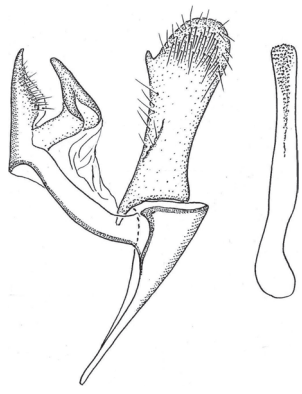
253. *Metatinea immaculatella* (Rebel, 1892) – Canary Island: La Palma – slide 2309 GP (SDEI) (according to Petersen & Gaedike, 1979);
a) Canary Island: Gran Canaria – slide 2305 GP (SDEI)

254. *Phereoeca allutella* (Rebel, 1892) – Canary Island: Tenerife – slide 1712 RG (SDEI) (according to Gaedike & Karsholt, 2001)

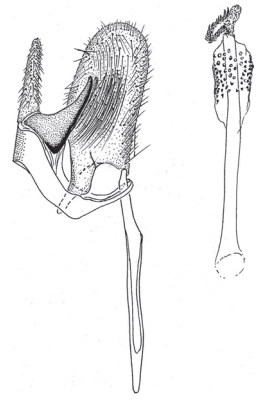
255. *Phereoeca lodli* Vives, 2001 – Spain – slide 6760 RG (SDEI);
a) Spain – slide 8524 RG (coll. Keller)



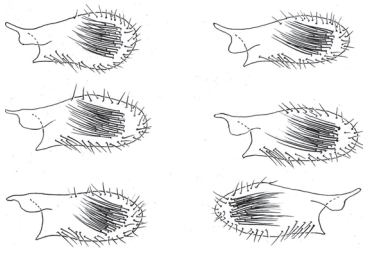
256



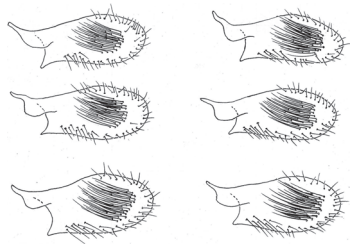
257



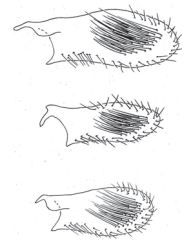
258



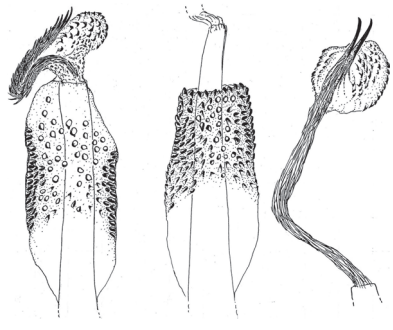
258a-258e



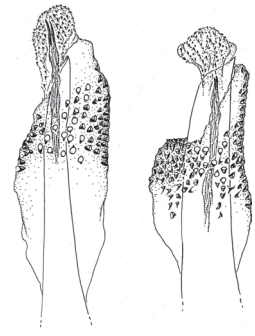
258f-258k



258l-258n

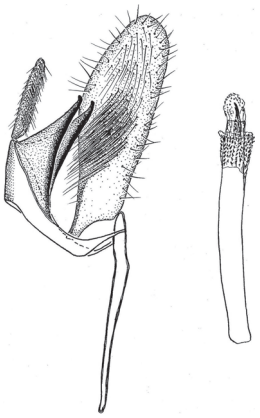


258o-258p

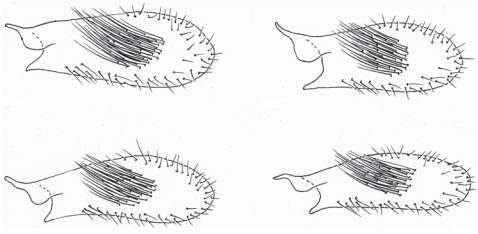


258q-258r

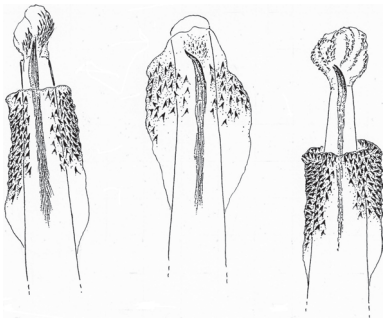
256. *Montetinea tenuicornella* (Klimesch, 1942) – Italy – slide 2649 GP (SMNK)
257. *Montetinea montana* Petersen, 1957 – Italy – slide 8359 RG (MFSN)
258. *Monopis laevigella* (Denis & Schiffermüller, 1775) – Russia – slide 1222 GP (SDEI); Valva: a)–j) Germany – slides 3216 GP; 7654 RG; 7669 RG; 7677 RG; 7667 (right and left valva) RG; 7673 RG; 7679 RG; 279 GP; 7664 RG (SDEI); i) Slovenija – slide 5331 RG (SDEI); k) Russia – slide 7661 RG (SDEI); l)–n) Finland – slides 8607, 8699, 8604 RG (SDEI); Phallus in higher magnification: o) Russia – slide 1222 GP (SDEI); p) Germany – slide 3216 GP (SDEI); q) Russia – slide 1223 GP (SDEI); r) Finland – slide 8607 RG (SDEI)



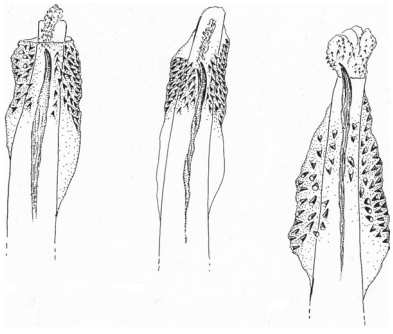
259



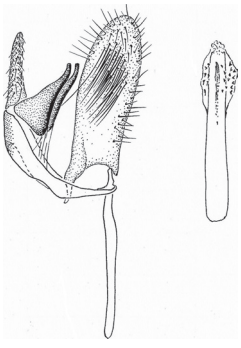
259a-259d



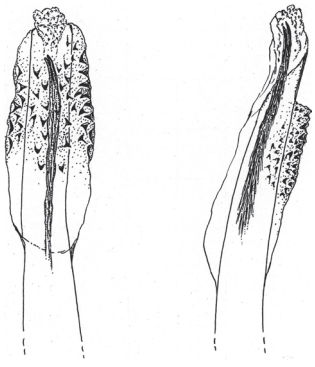
259e-259g



259h-259j



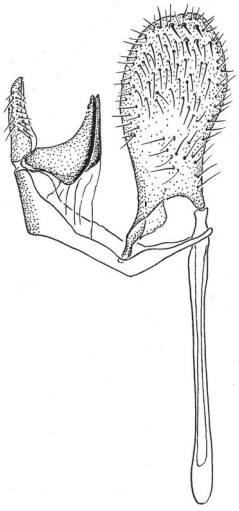
260



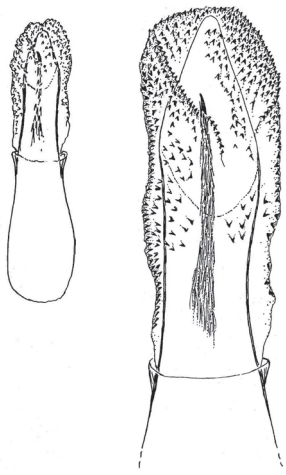
260a-260b

259. *Monopis weaverella* (Scott, 1858) – Sweden – slide 1214 GP (SDEI); Valva:
a)–d) Germany – slides 7680 RG; 7668 RG; 7678 RG; 7658 RG (SDEI); Phallus in higher magnification: e) Sweden – slide 1214 GP; f)–j) Germany – slides 7680 RG; 281 GP; 7668 RG; 7658 RG; 7678 RG (SDEI)

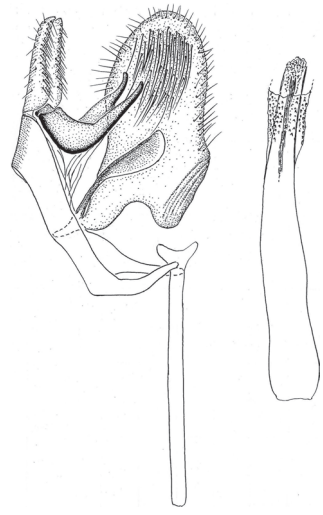
260. *Monopis neglecta* Šumpich & Liška, 2011 – Czech Republic – slide 7652 RG (SDEI)(paratype) Phallus in higher magnification:
a) same slide; b) Czech Republic – slide 8744 RG (NMPC)



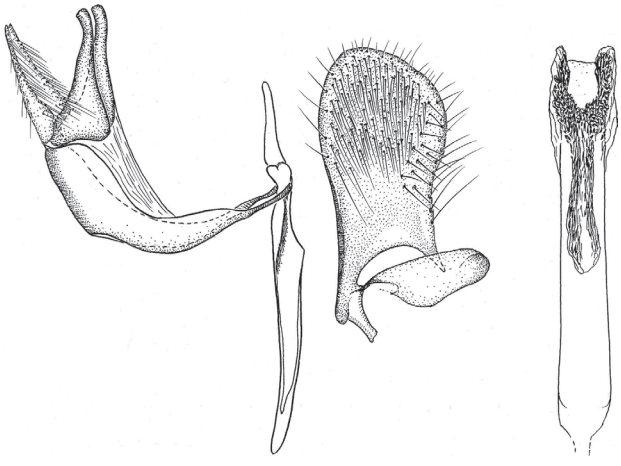
261



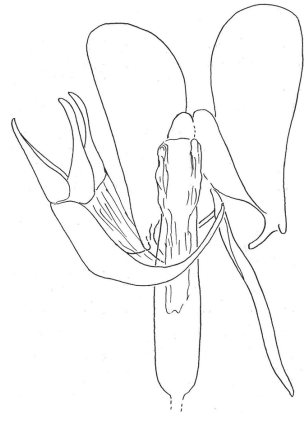
261a



262



263

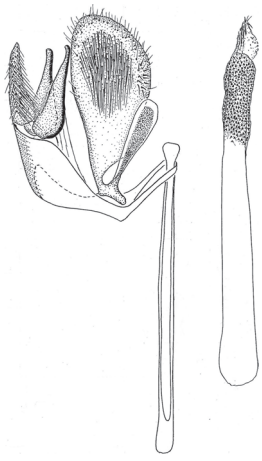


263a

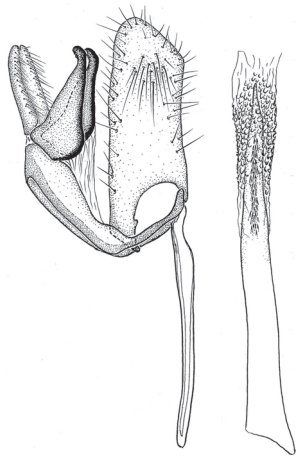
261. *Monopis spilotella* (Tengström, 1848) – USA – slide 1227 GP (SDEI); Phallus in higher magnification: a) same slide

262. *Monopis burmanni* Petersen, 1979 – Austria – slide 2647 GP (SMNK)

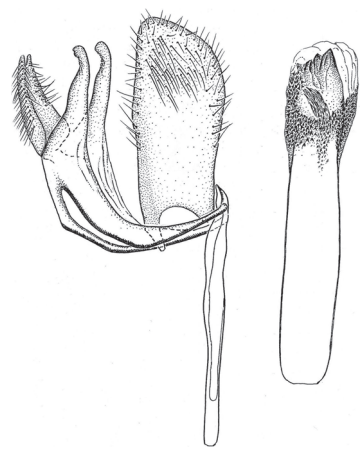
263. *Monopis luteocostalis* Gaedike, 2006 – Russia – slide 4680 RG (SDEI) (According to Gaedike, 2006); Entire genitalia, latero-dorsally:
a) same dates – slide 5142 RG (SDEI) (According to Gaedike, 2006)



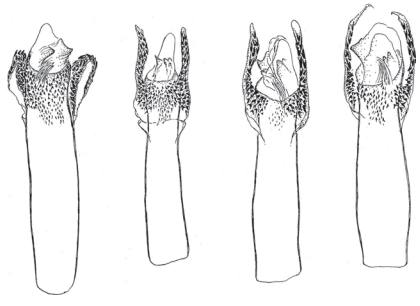
264



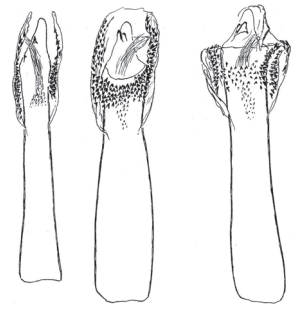
265



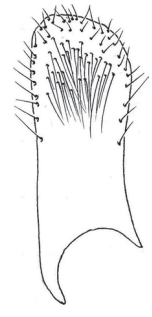
266



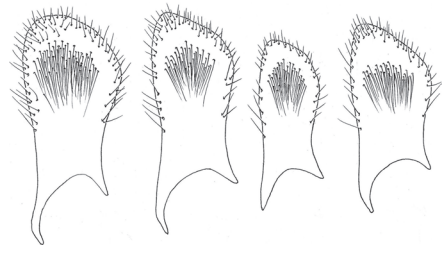
266a-266d



266e-266g



266h

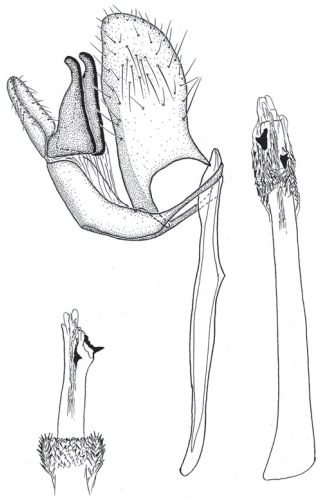


266i-266l

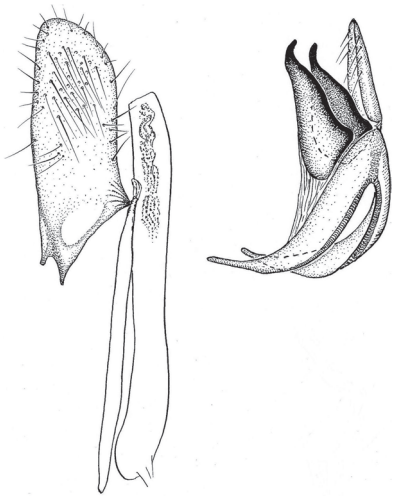
264. *Monopis obviella* (Denis & Schiffermüller, 1775) – Montenegro – slide 5336 RG (SDEI)

265. *Monopis crocicapitella* (Clemens, 1859) – Slovakia – slide 3219 RG (SDEI) (according to Gaedike & Karsholt, 2001)

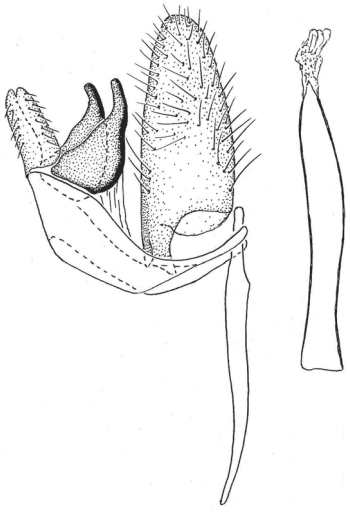
266. *Monopis imella* (Hübner, 1813) – Italy – slide 2962 GP (SDEI); Phallus: a) Iran – slide 2214 GP (SDEI); b) Austria – slide 1219 GP (SDEI); c) Israel – slide 2257 GP (SDEI); d) without dates [probably Balkan Peninsula] – slide 297 GP (SDEI); e) Ukraine – slide 6720 RG (ZMUC); f) Canary Island: Tenerife – slide 4166 RG (SDEI); g) Yemen – slide 6013 RG (SDEI); Variability of valva: h) Ukraine – slide 6720 RG (ZMUC); i) without dates [probably Balkan Peninsula] – slide 295 GP (SDEI); j) Canary Island: Tenerife – slide 2824 GP (SDEI); k) Germany – slide 2251 GP (SDEI); l) Greece – slide 5160 RG (SDEI)



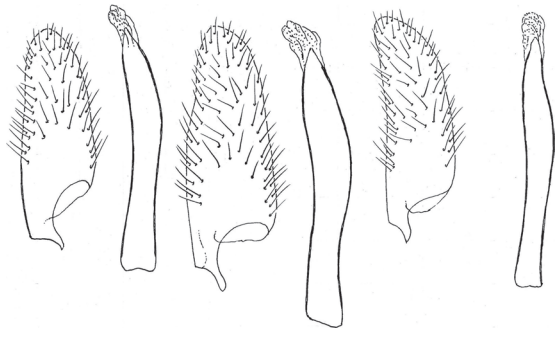
267, 267a



268



269

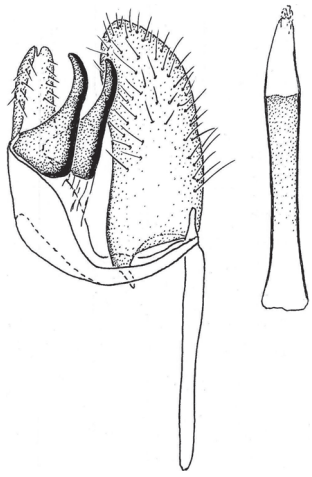


269a-269c

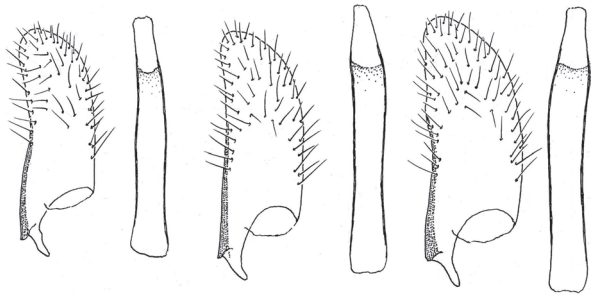
267. *Monopis nigricantella* (Millière, 1872) – Spain – slide 1955 GP (SDEI) (according to Gaedike & Karsholt, 2001); Tip of phallus:
a) France – slide 1705 RG (SDEI) (according to Gaedike & Karsholt, 2001)

268. *Monopis henderickxi* Gaedike & Karsholt, 2001 – Madeira – slide 4726 RG (ZMUC) (according to Gaedike & Karsholt, 2001)

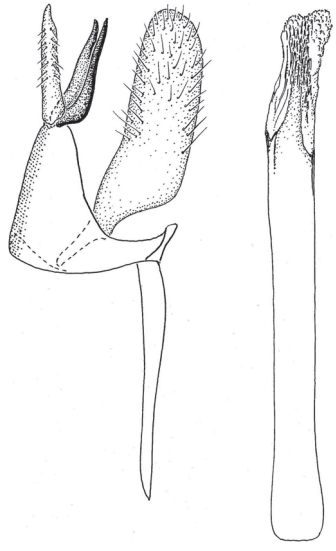
269. *Monopis christophi* Petersen, 1957 – Afghanistan – slide 2499 GP (SDEI);
a) same location – slide 2453 GP (SDEI); b) Mongolia – slide 2526 GP (SDEI); c) Russia – slide 1406 GP (SDEI)



270



270a-270c



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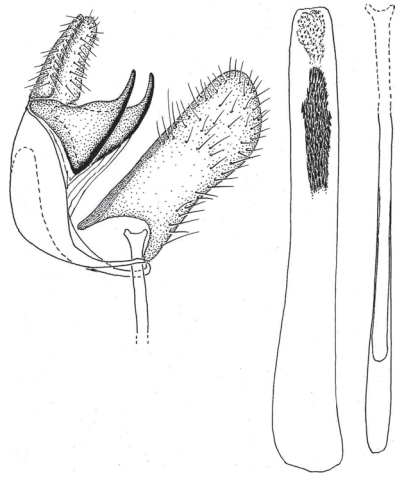
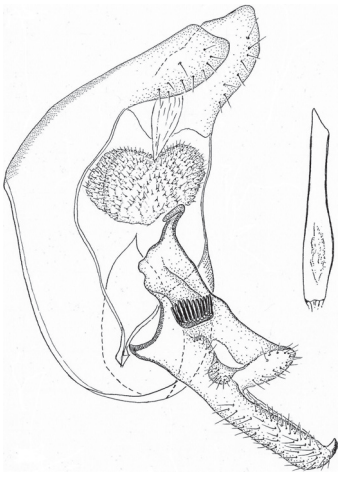


273

270. *Monopis pallidella* Zagulajev, 1955 – Russia (Siberia) – slide 5677 RG (SDEI);
a) same location – slide 4165 RG (SDEI); b), c) Russia: Caucasus mts – slides 2791, 2790 RG (SDEI)

272. *Monopis fenestratella* (Heyden, 1863) – Germany – slide 235 GP (SDEI)

273. *Monopis monachella* (Hübner, 1796) – Bosnia and Herzegovina – slide 303 GP (SDEI)



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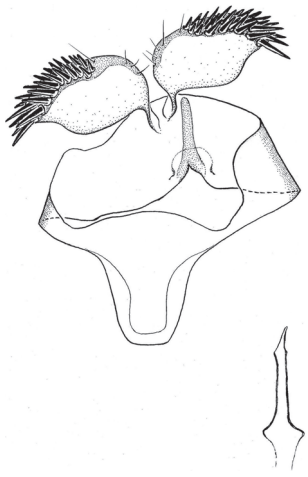

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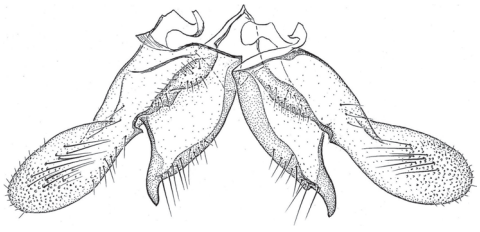
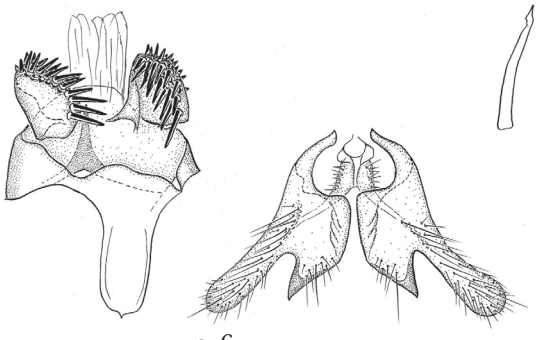


275a



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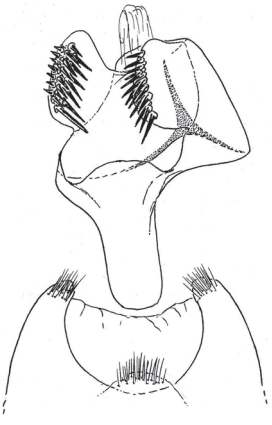
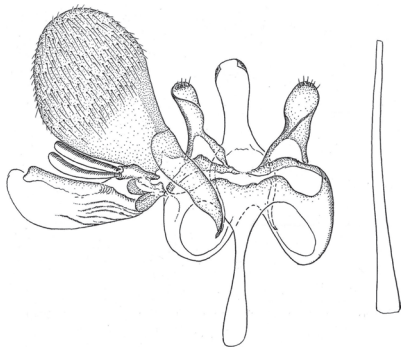


276a

274. *Pelecystola fraudulentella* (Zeller, 1852) – Slovenia – slide 12195 BMNH (according to Gaedike & Tokar, 2010)

275. *Opogona sacchari* (Bojer, 1856) – Madeira – slide 4735 RG (ZMUC) (according to Gaedike & Karsholt, 2001)

276. *Opogona omoscopa* (Meyrick, 1893) – Madeira – slide 4738 RG (ZMUC) (according to Gaedike & Karsholt, 2001); Ventrolateral view; sternite VIII:
a) Canary Island: Tenerife – slide 8103 RG (coll. Jelinek)



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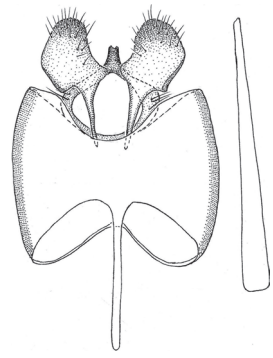

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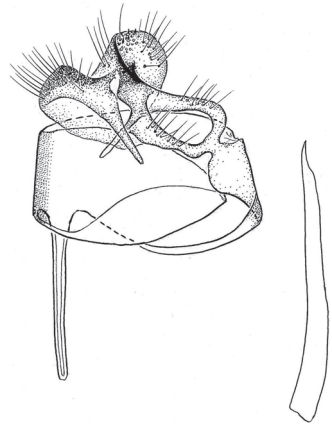
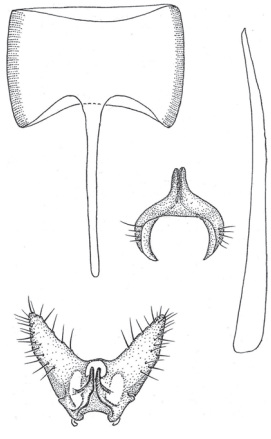


278a



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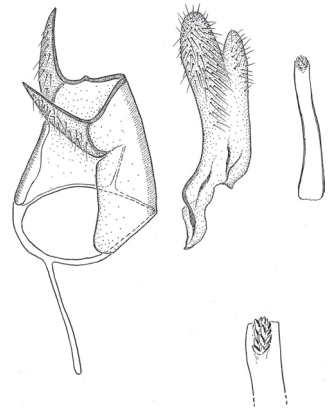
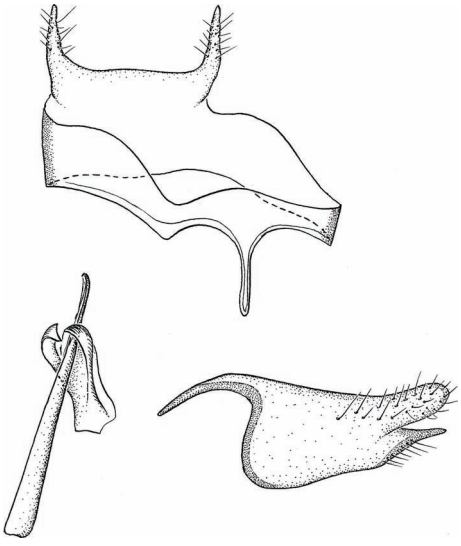
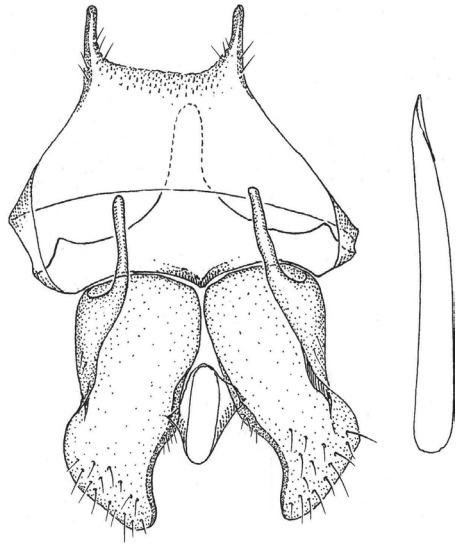


280, 280a

277. *Wegneria panchalcella* (Staudinger, 1871) – Turkey – slide 6999 RG (ZMNK)
278. *Oinophila v-flava* (Haworth, 1828) – Canary Island: Tenerife – slide 7635 RG (SDEI); Dorsolateral view:
a) Germany – slide 4747 RG (SDEI) (according to Gaedike & Karsholt, 2001)
279. *Oinophila nesiotes* Walsingham, 1908 – Canary Island: La Palma – slide 7748 RG (ZSM)
280. *Amphixystis undosa* (Walsingham, 1908) – Canary Island: Tenerife – slide 6499 RG (ZSM) Tip of phallus in higher magnification: a) same slide



281



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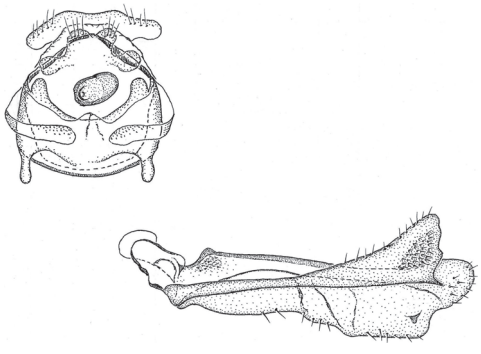

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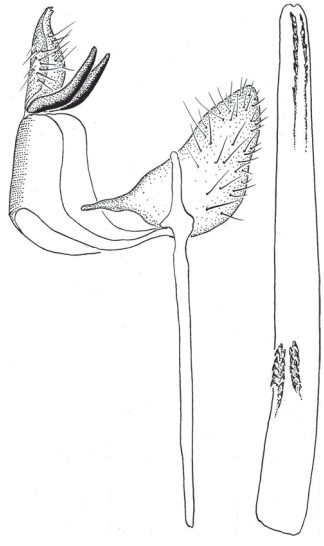
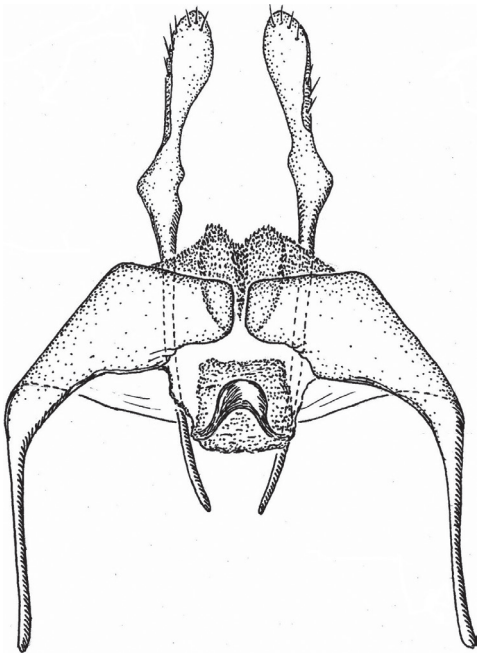


284

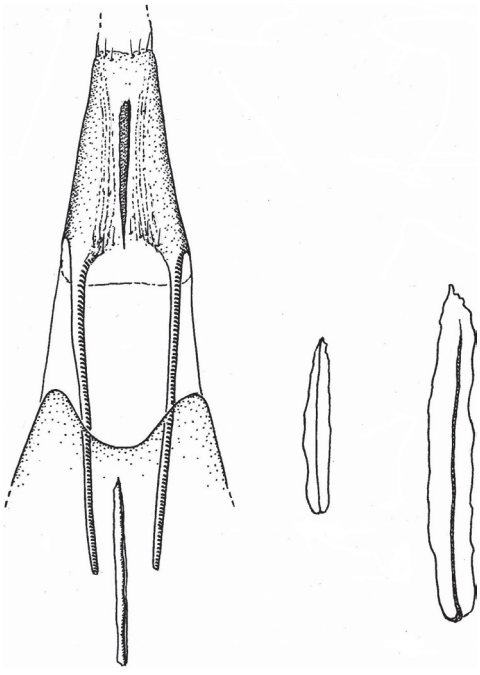
281. *Teichobia filicivora* (Meyrick, 1937) – Madeira – slide 4733 RG (ZMUC) (according to Gaedike & Karsholt, 2001)
282. *Teichobia verhuella* (Bruand, [1854]) – Croatia – slide 179 GP (SDEI)
283. *Stathmopolitis tragocoprella* Walsingham, 1908 – Canary Island: Tenerife – slide 7969 RG (ZSM)
284. *Tinea hongorella* Zagulajev, 1975 – Russia: Altai republic – slide 8937 (NMPC)

CHAPTER 6

Drawings, Female Genitalia



181



182, 182a, and 182b

181. *Pachyarthra mediterraneae* (Bethune-Baker, 1894) – Egypt – slide GP (SDEI)
182. *Myrmecozela ochraceella* (Tengström, 1848) – Sweden – slide 7914 RG (SDEI); a) Switzerland slide 363 GP [signum] (SDEI); b) same slide, in higher magnification

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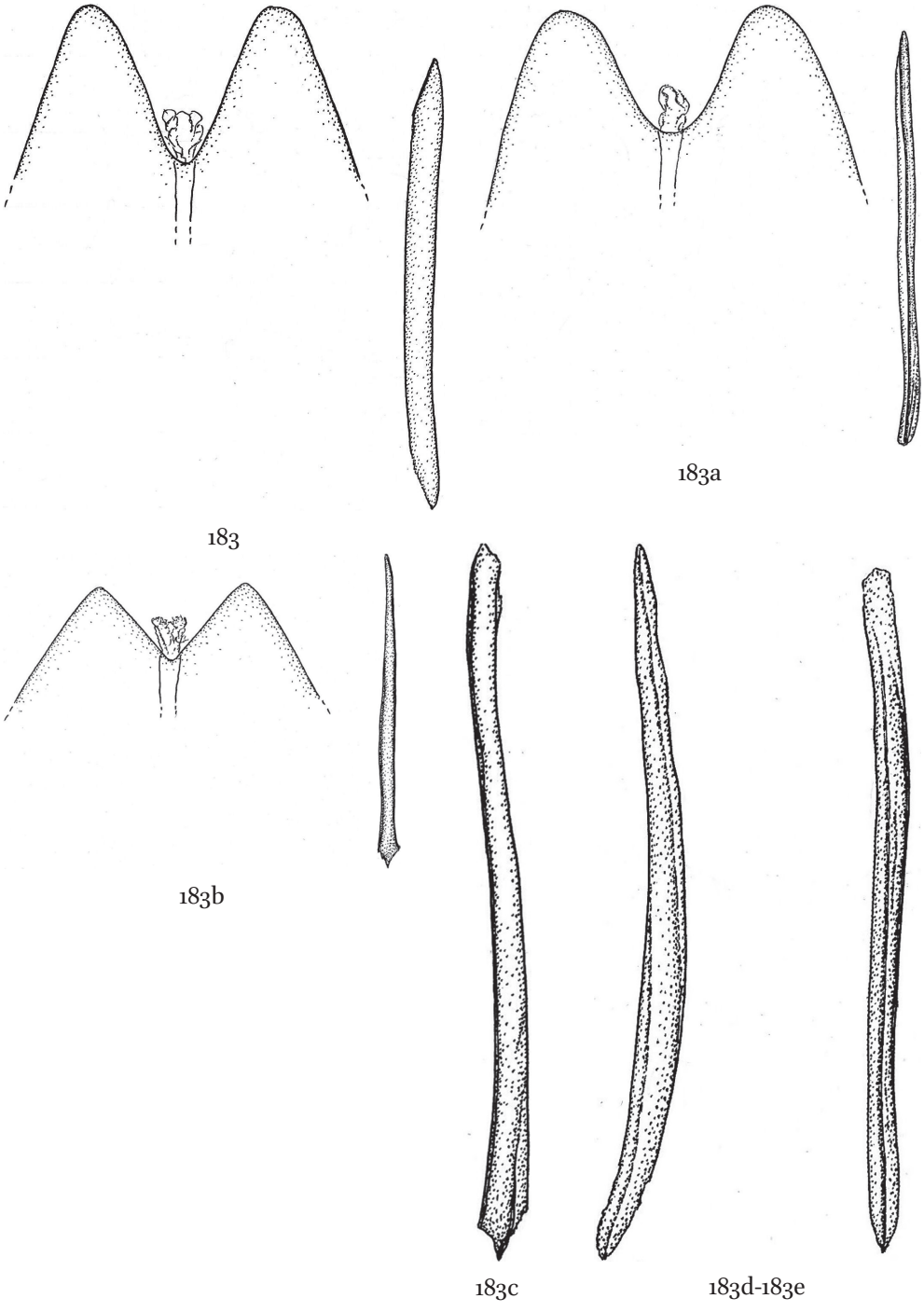
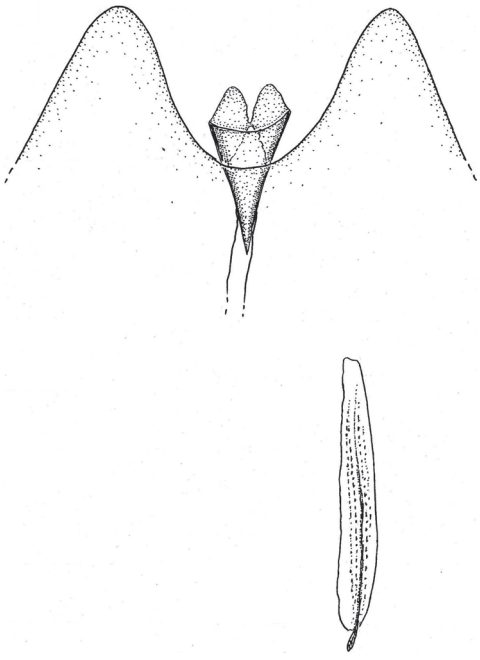
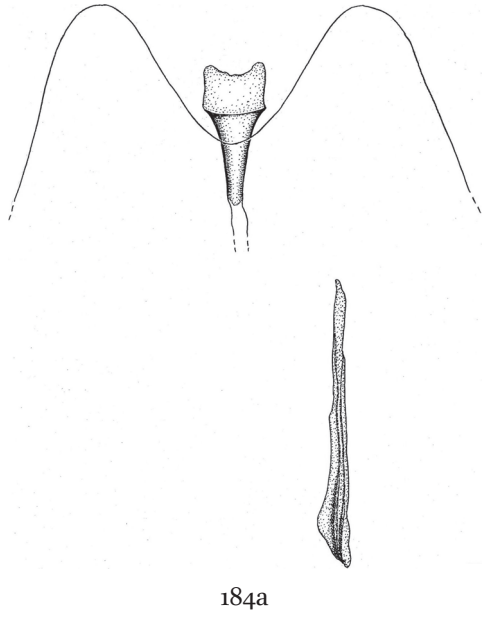


183. *Myrmecozela lutosella* (Eversmann, 1844) – Russia – slide 10008 ZAG (ZIN); a) Azerbaijan – slide 10061 ZAG (ZIN); b) Kazakhstan – slide 10043 ZAG (ZIN); variability of signum: c) Georgia – slide 10055 ZAG (ZIN); d) Armenia – slide 10059 ZAG (ZIN); e) Russia – slide 10050 ZAG (ZIN)

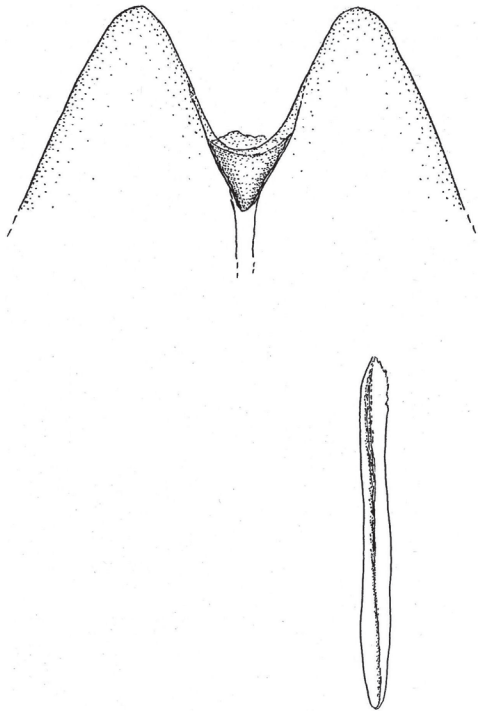


184



184a

184. *Myrmecozela diacona* Walsingham, 1907 – without location – slide 7917 RG (SDEI); a) Tunisia – slide 8141 RG (SDEI)



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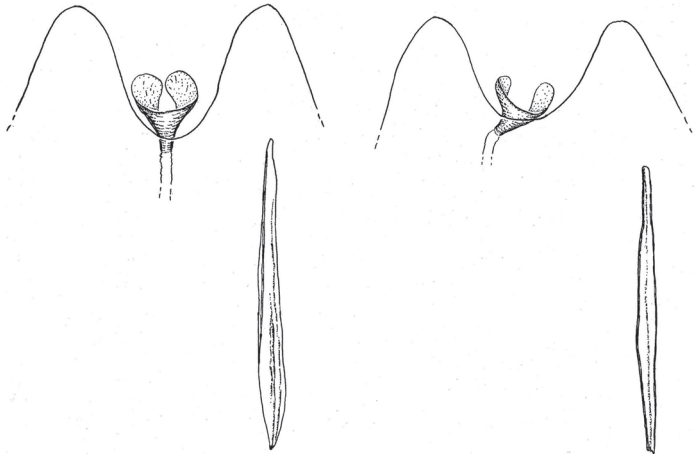
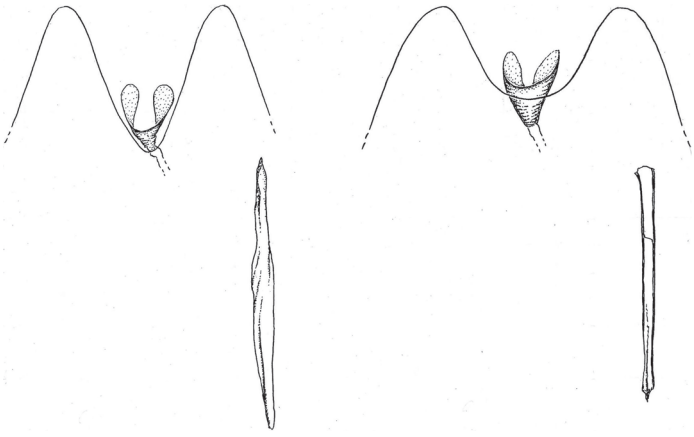
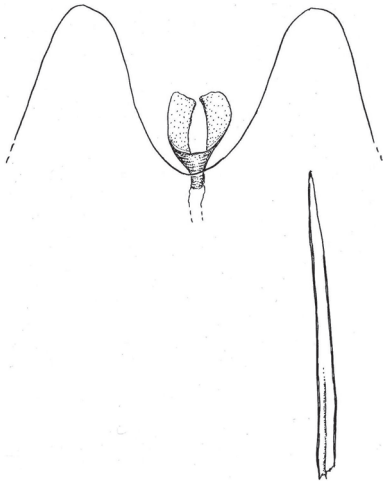


185a-185b

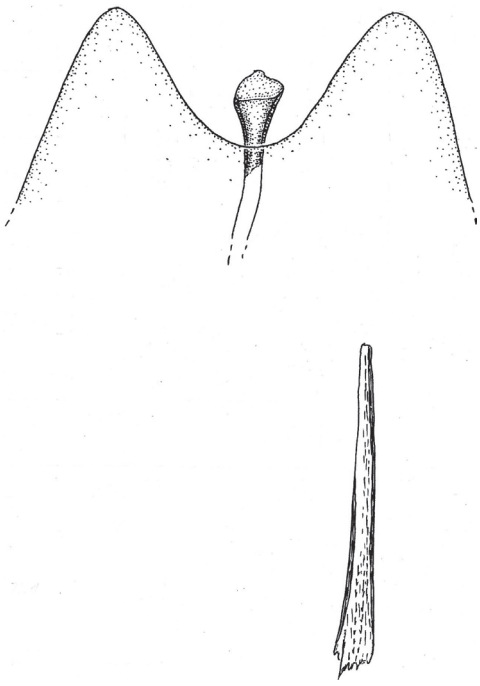
185. *Myrmecozela ataxella* (Chrétien, 1905) – Spain – slide 7920 RG (SDEI); a) Spain – slide 8012 RG (SDEI); b) Spain – slide 8011 RG (SDEI); c) Spain – slide 8013 RG (SDEI); d) Bulgaria – slide 8122 RG (ZMUC); e) Tunisia – slide 7971 RG (SDEI)



185c-185d



185e



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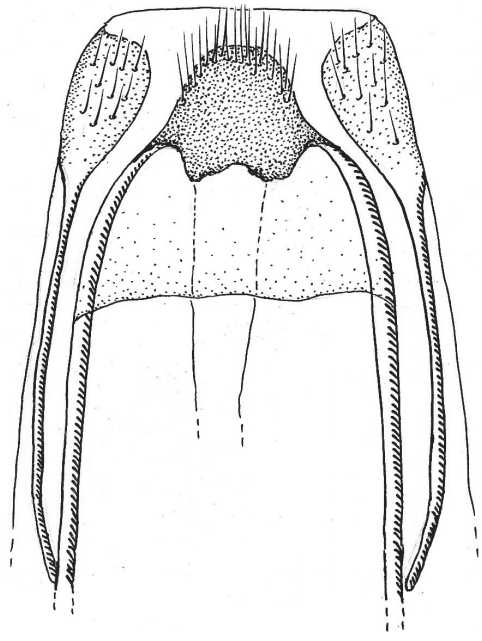

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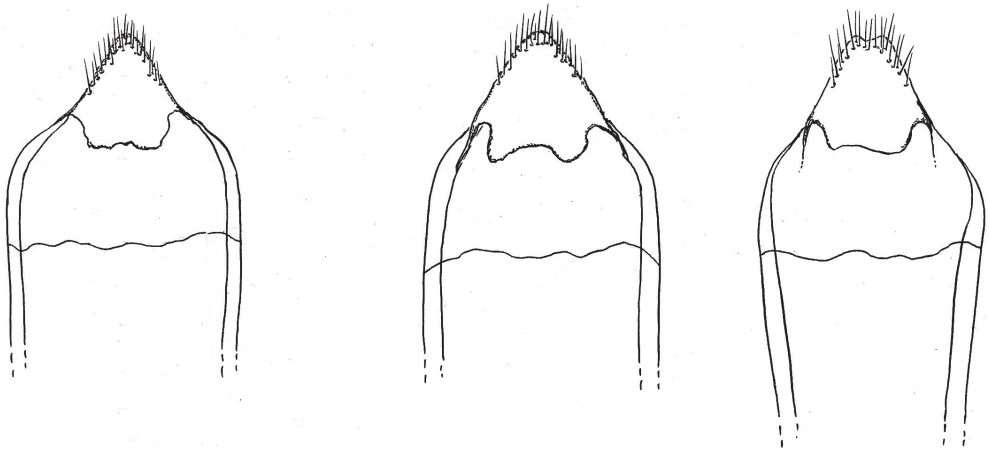
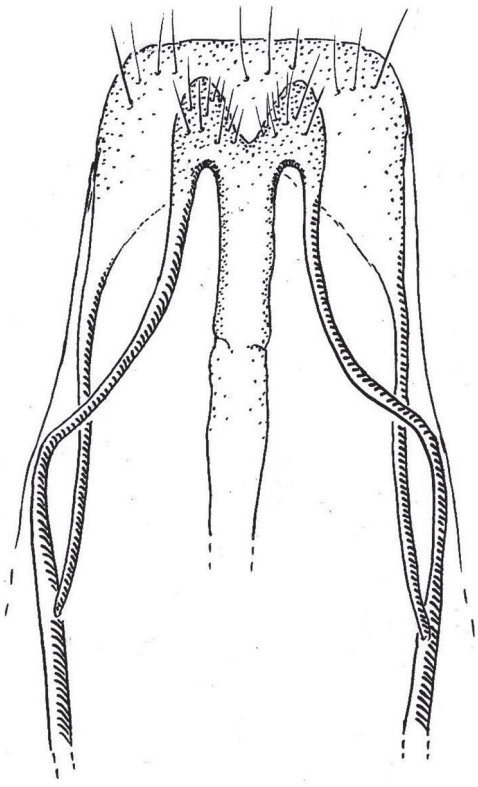
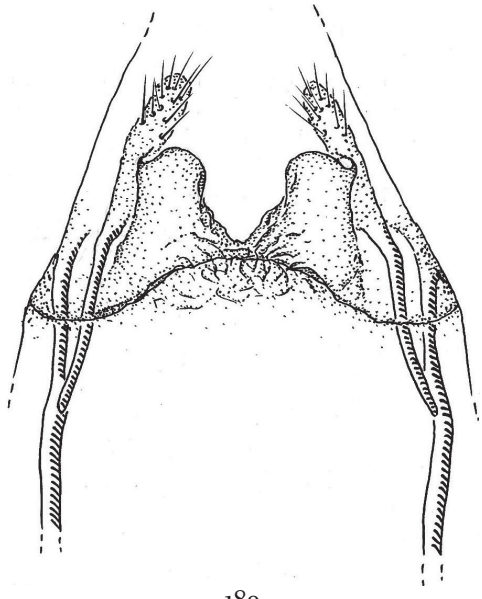


187a-187c

186. *Myrmecozela lambessella* (Rebel, 1901) – Spain – slide 7921 RG (SDEI) [ssp. *cuencella*]
187. *Ateliotum hungaricellum* Zeller, 1839 – Germany – slide 225 GP (SDEI); a) Germany – slide 224 GP (SDEI); b) Germany – slide 2714 GP (SDEI); c) Hungary – slide 3097 GP (SDEI)





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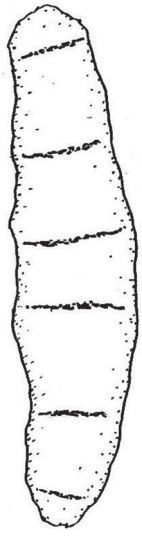

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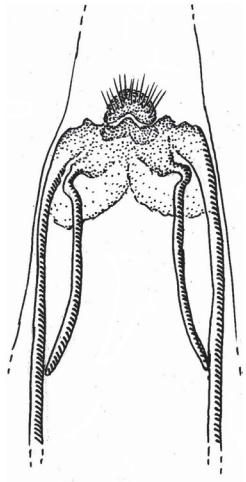
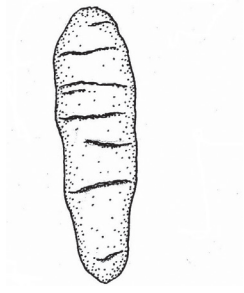
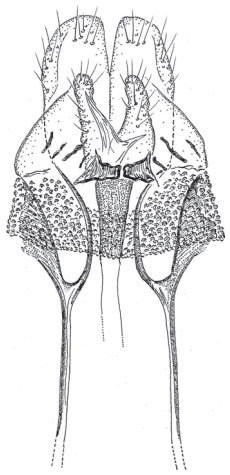




190

188. *Ateliotum petrinella* (Herrich-Schäffer, 1854) – Portugal – slide 7071 RG (SDEI)
189. *Ateliotum insularis* (Rebel, 1896) – Spain – slide 2717 GP (SDEI)
190. *Ateliotum syriaca* (Caradja, 1920) – Turkey – slide 3070 GP (SDEI)



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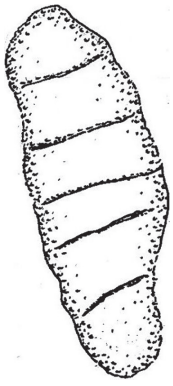
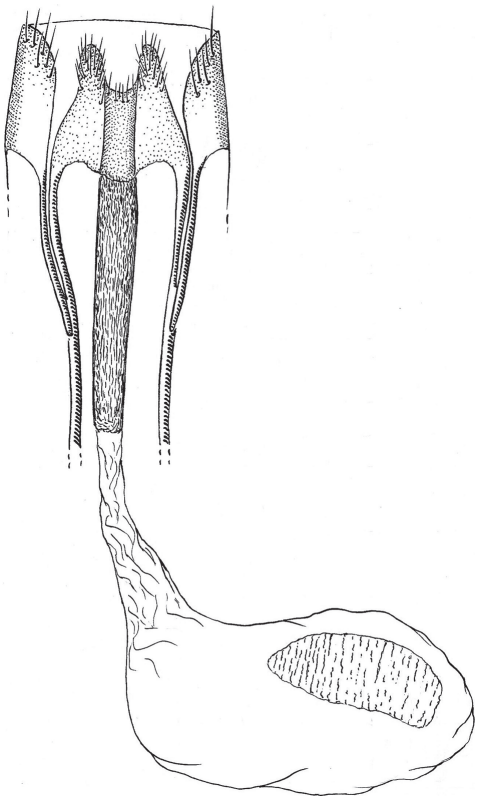


191a



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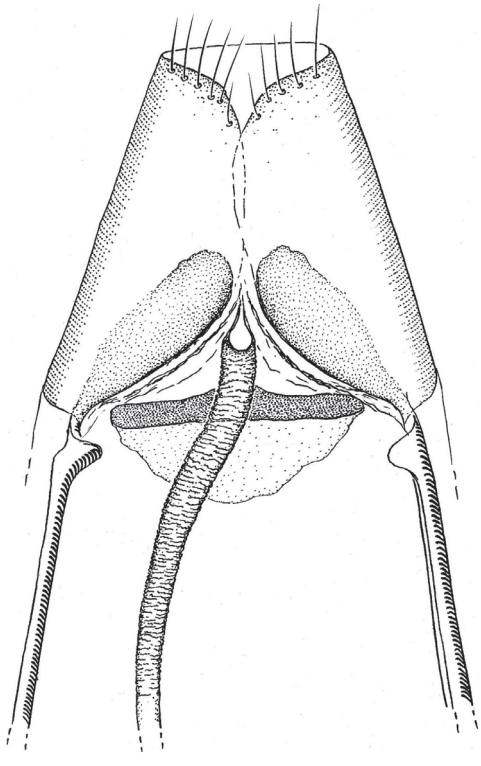
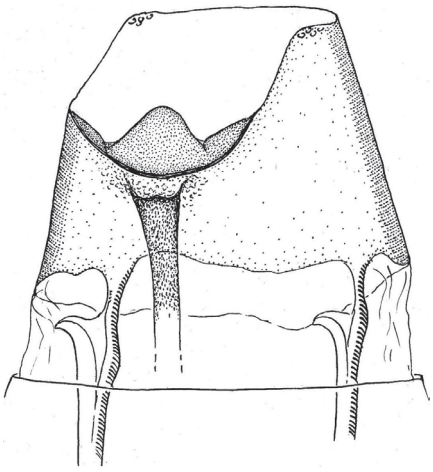


193

191. *Ateliotum arenbergeri* Petersen & Gaedike, 1985 – Cyprus – slide 3057 GP (SDEI) (according to Petersen & Gaedike, 1985); a) Signum, enlarged, Cyprus – slide 650 IB (coll. Barton)

192. *Ateliotum larseni* Gaedike, 2011 – Canary Island: Gran Canaria – slide 7305 RG (SDEI) (according to Gaedike, 2011a)

193. *Haplotinea ditella* (Pierce & Diakonoff, 1938) – Germany – slide 346 – GP (SDEI)



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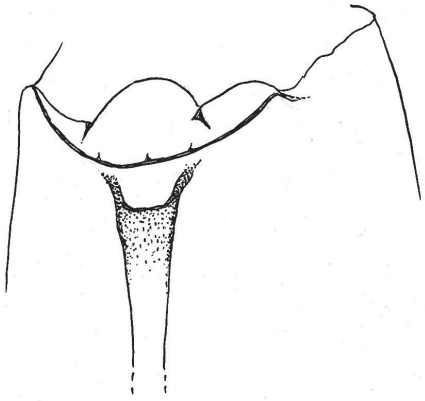
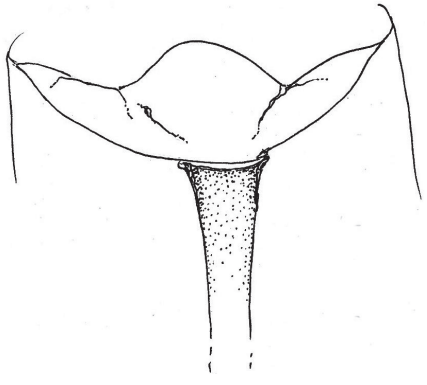
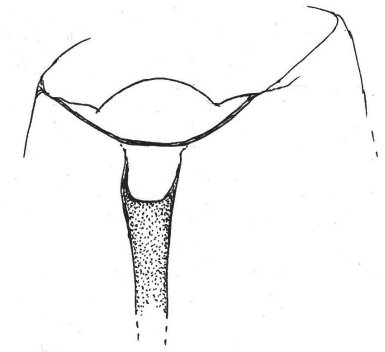
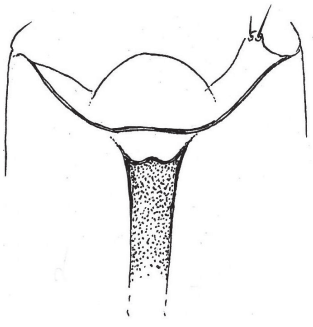


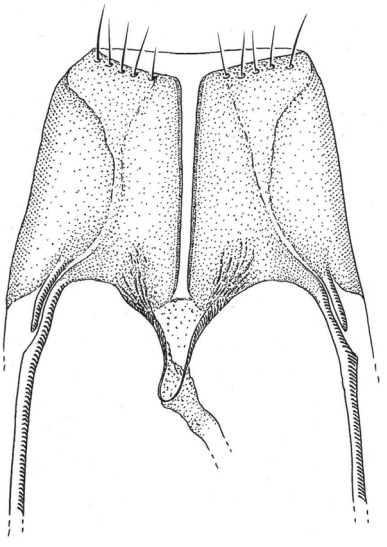


194a-194b





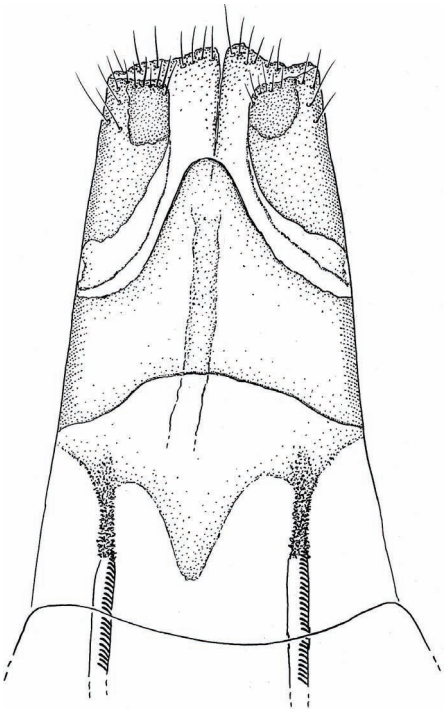
194c-194d



195

194. *Haplotinea insectella* (Fabricius, 1794) – Russia – slide 1379 GP (SDEI); a) Germany – slide 5505 RG (SDEI); b) Austria – slide 341 GP (SDEI); c) Switzerland – slide 6226 RG (SDEI); d) Germany – slide 1969 GP (SDEI)

195. *Cephimallota praetoriella* (Christoph, 1872) – Syria – slide 8466 RG (SDEI)



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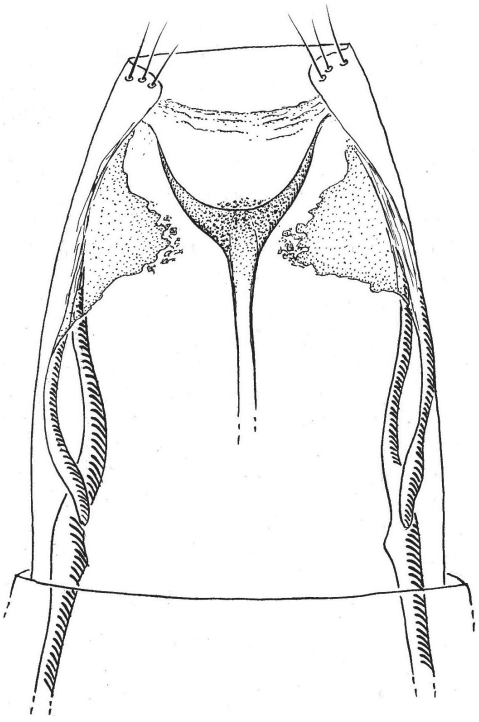

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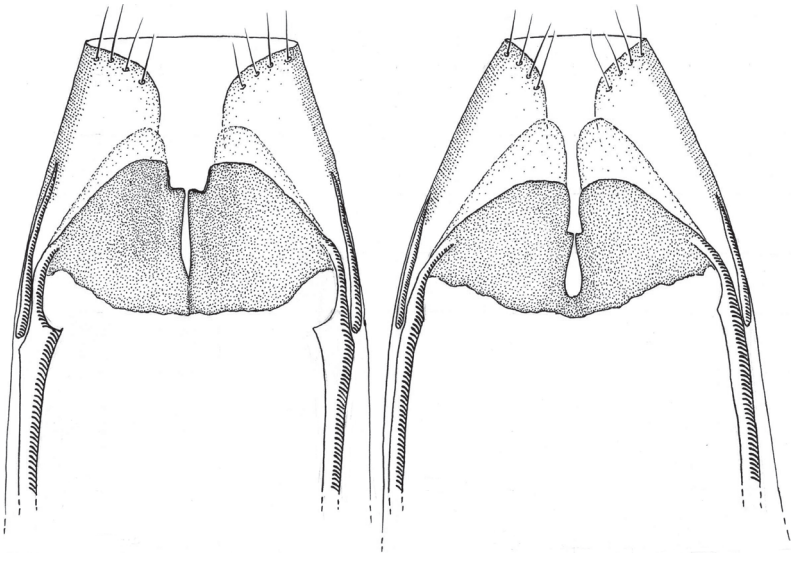
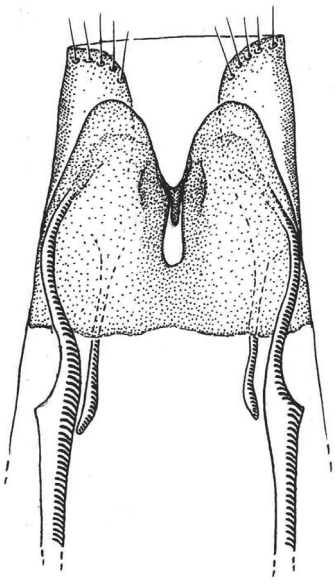


198-198a

196. *Cephimallota colonella* (Erschoff, 1874) – Russia Far East – slide 2190 GP (SDEI)
197. *Cephimallota tunesiella* (Zagulajev, 1966) – Morocco – slide 2033 GP (SDEI)
198. *Cephimallota crassiflavella* Bruand, 1851 – Poland – slide 1712 GP (SDEI) (according to Gaedike & Mally, 2011); a) France – slide 361 GP (SDEI) (according to Gaedike & Mally, 2011)



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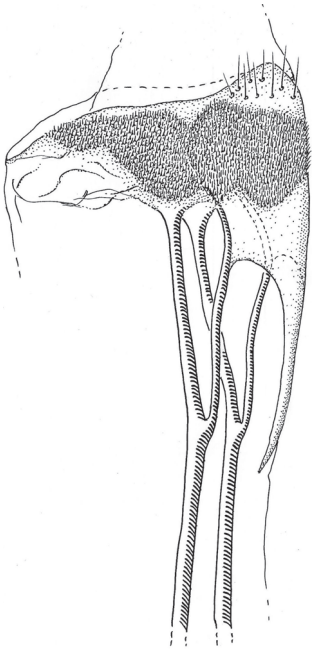

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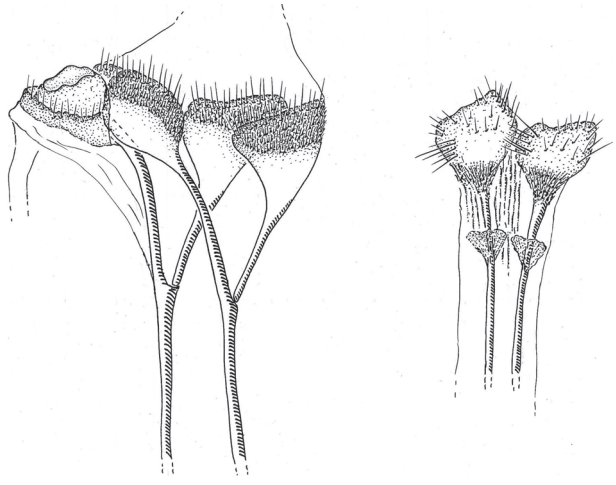

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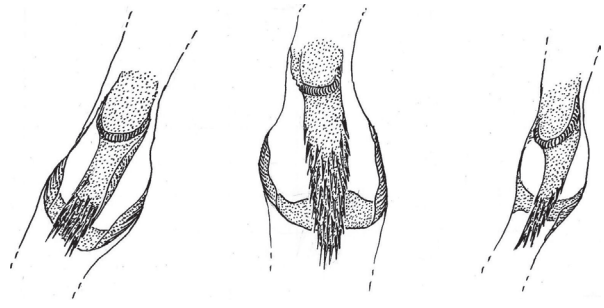
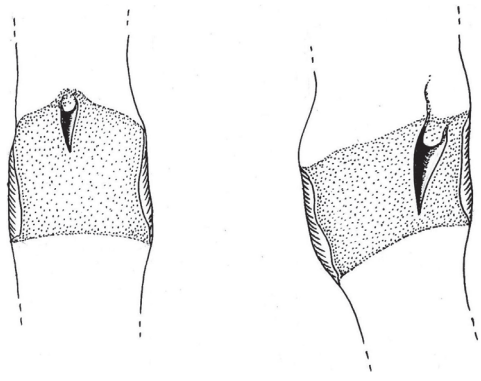


201a-201c

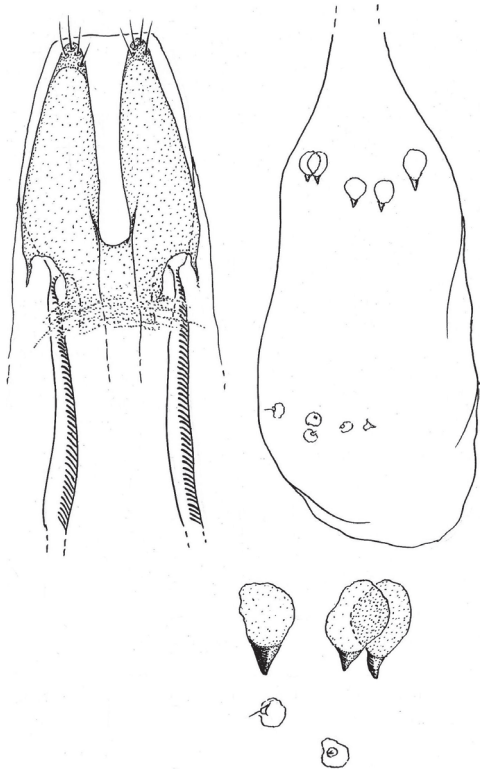
199. *Cephimallota angusticostella* (Zeller, 1839) – Macedonia – slide 2062 GP (SDEI) (according to Gaedike & Mally, 2011)

200. *Edosa fuscoviolacella* (Ragonot, 1895) – Turkey – slide 925 GP (SDEI)

201. *Crassicornella crassicornella* (Zeller, 1847) – Greece – slide 2908 GP (SDEI); Sclerotization in ductus bursae, in higher magnification: a); c) Crite – slide 8468, 8469 RG (SDEI); b) Greece – slide 3273 RG (SDEI)



202-202a



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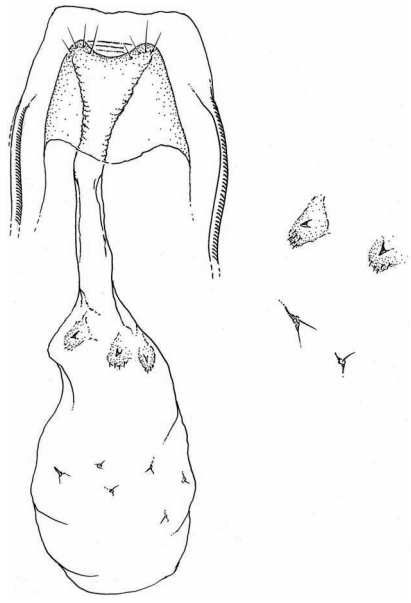

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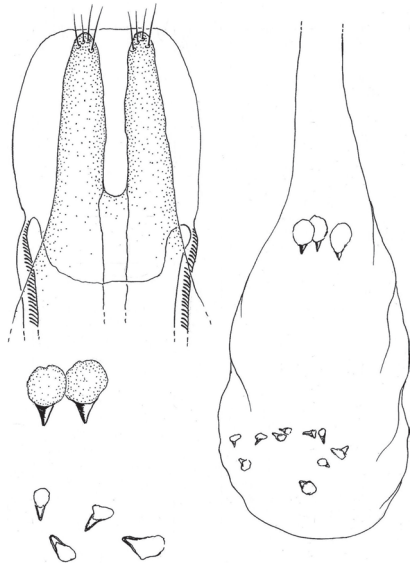
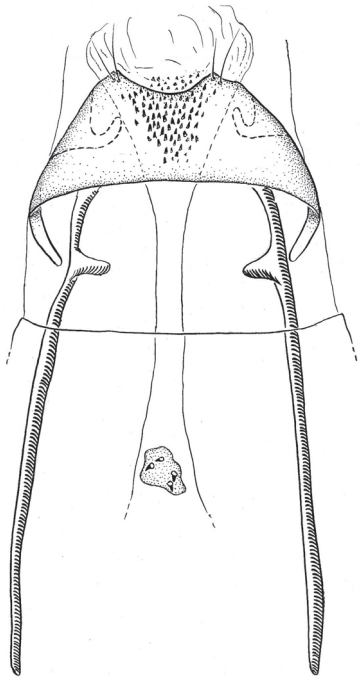


206

202. *Crassicornella agenjoi* (Petersen, 1957) – Sclerotization in ductus bursae: Spain – slide 8470 RG (SDEI); a) Spain – slide 1215 GP (SDEI)
203. *Ceratuncus danubiella* (Mann, 1866) – Romania – slide 148 GP (ZMHB); the separated signa in higher magnification
204. *Ceratuncus maroccanella* (Amsel, 1951) – Portugal – slide 1180 MC (coll. Corley)
206. *Ceratuncus affinitella* (Rebel, 1901) – Turkey – slide 1721 RG (SDEI); the separated signa in higher magnification



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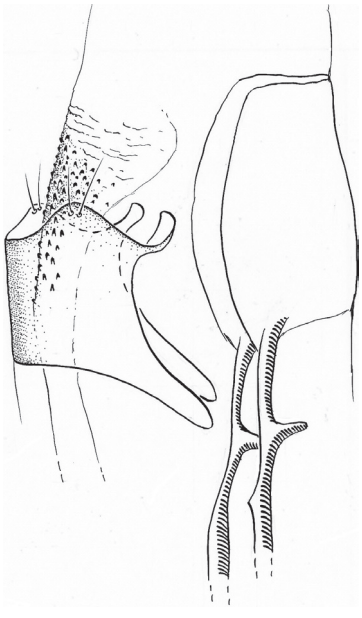
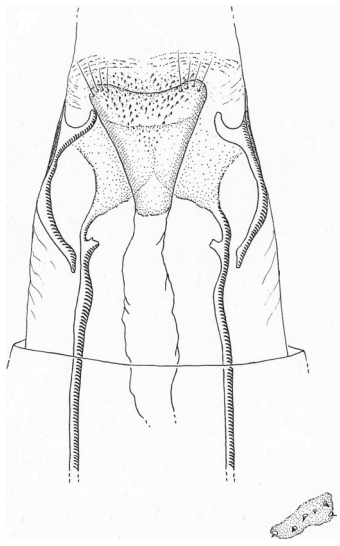


207a



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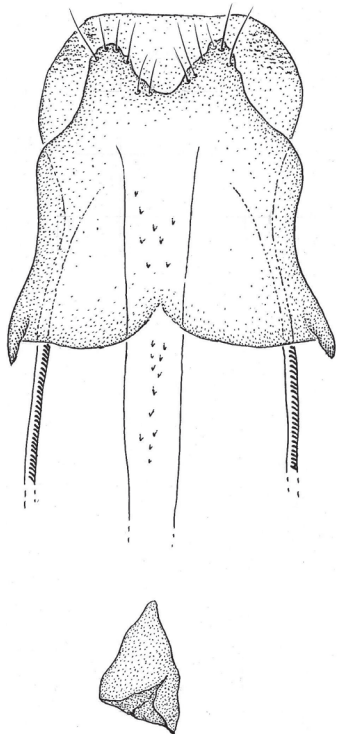
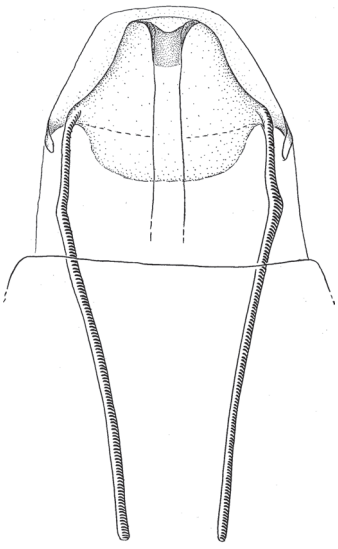


209

207. *Reisserita zernyi* Petersen, 1957 – Spain – slide 3303 GP (coll. Baldizzone)(according to Petersen & Gaedike, 1992); a) Spain – slide 1724 RG (SDEI); lateral view (according to Petersen & Gaedike, 1992)
208. *Reisserita haasi* (Rebel, 1901) – Spain – slide 6959 RG (ZMUC)
209. *Reisserita chrysopterella* (Herrich-Schäffer, 1854) – Spain – slide 1880 GP (SDEI)



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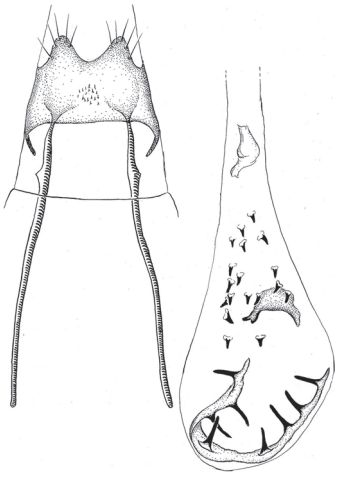

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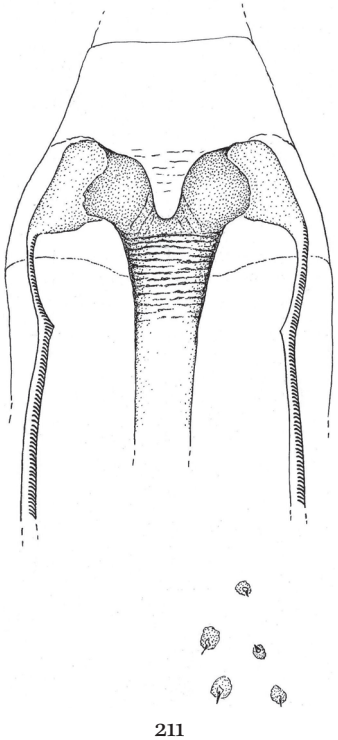

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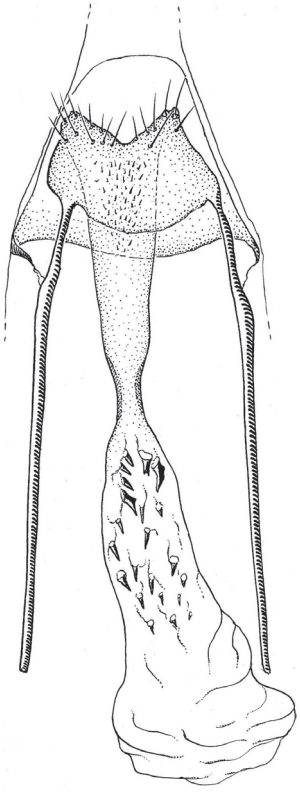
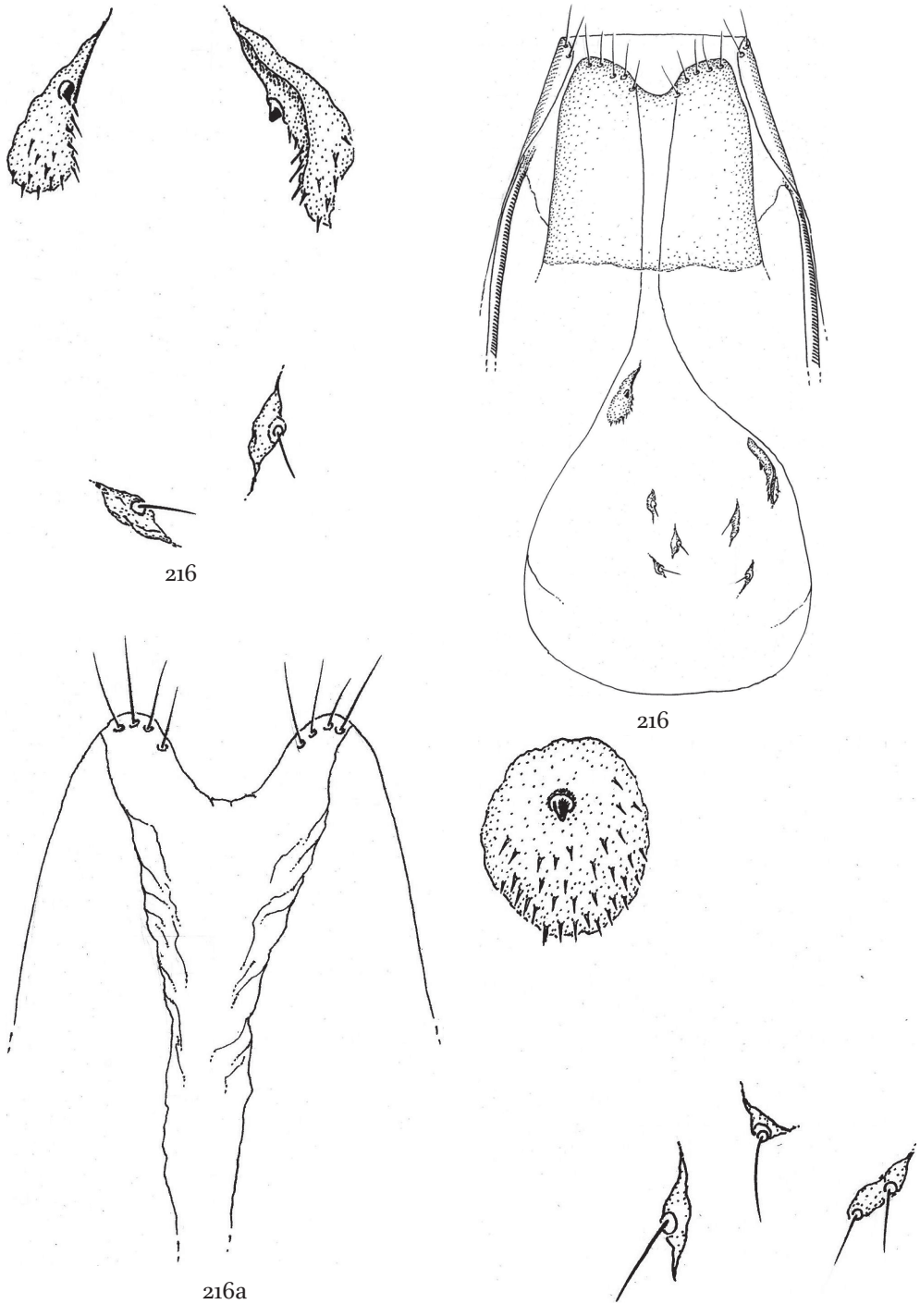
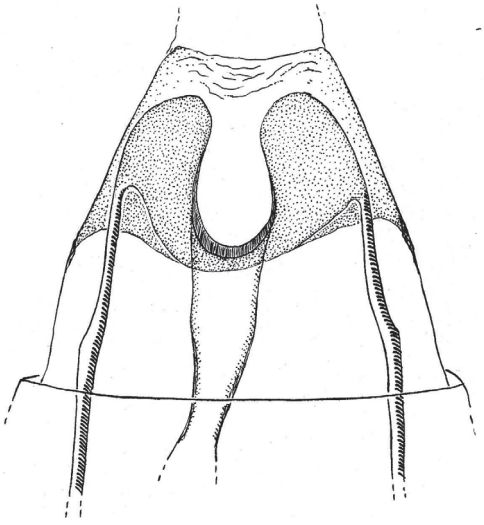


215

210. *Reisserita parva* Petersen & Gaedike, 1979 – Morocco – slide 2666 RG (MNHN) (according to Gaedike, 2015)
211. *Reisserita latiusculella* (Stainton, 1867) – Cyprus – slide 7108 RG (ZMUC)
213. *Reisserita relicinella* (Herrich-Schäffer, 1853) – Turkey – slide 1506 Scholz (SDEI)
215. *Reisserita flavofimbriella* (Chrétien, 1925) – Portugal – slide 7404 RG (SDEI)



216. *Anomalotinea liguriella* (Millière, 1879) – Spain – slide 414 GP (SDEI) signa separated, in higher magnification; a) Spain – slide 5684 RG (SDEI); signa, in higher magnification: b) Spain – slide 8543 RG (SDEI)



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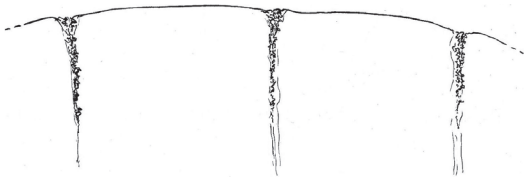
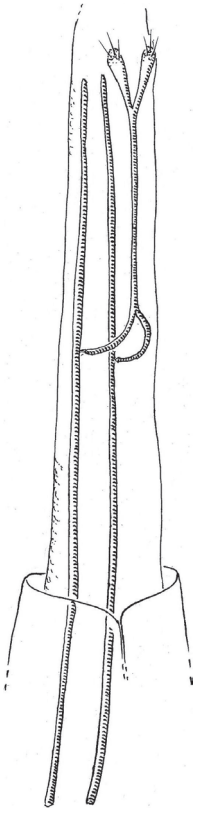


217a



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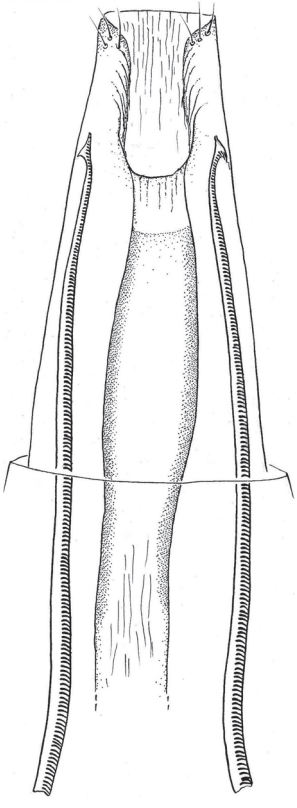
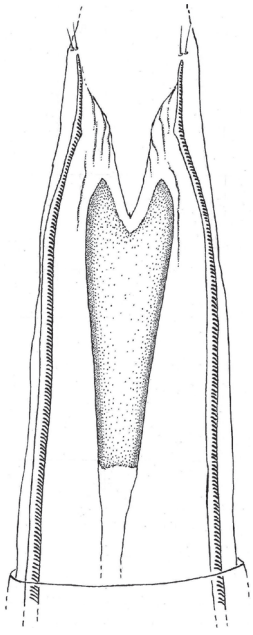


219

217. *Anomalotinea gardesanella* (Hartig, 1950) – Greece – slide 7234 RG (FMNH) (According to Gaedike, 2011a); a) intersegmental skin – same slide (according to Gaedike, 2011a)
218. *Anomalotinea cubiculella* (Staudinger, 1859) – Spain – slide 8546 RG (SDEI)
219. *Trichophaga tapetzella* (Linnaeus, 1758) – Germany – slide 331 GP (SDEI) (according to Gaedike & Karsholt, 2001)



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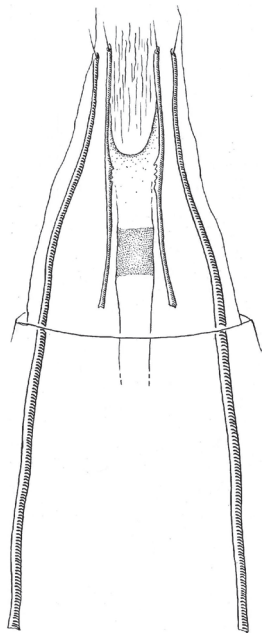

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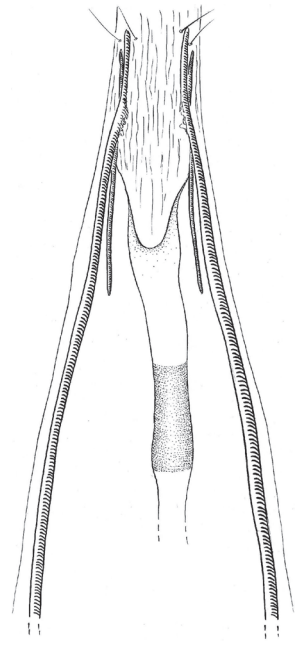

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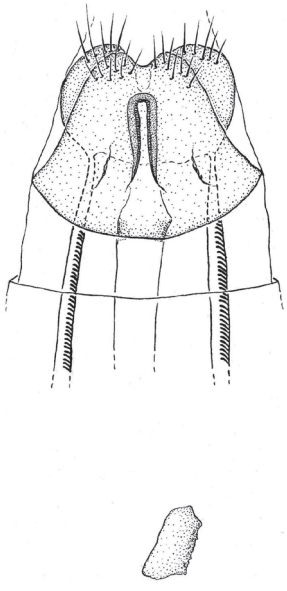

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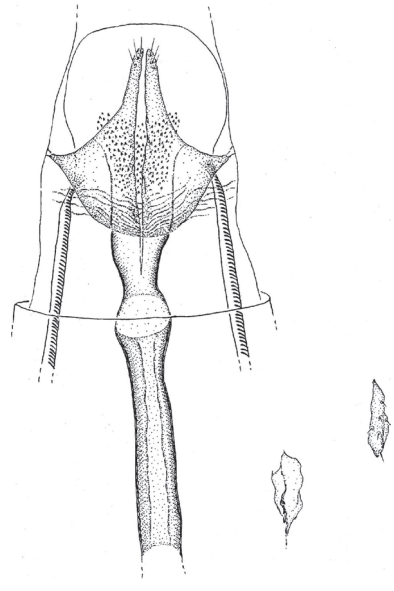
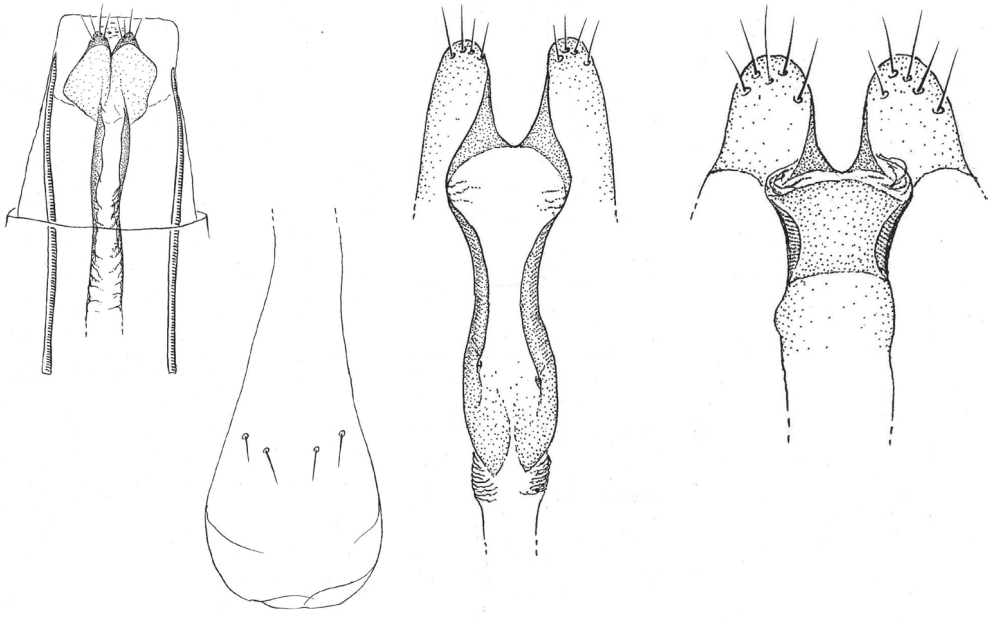
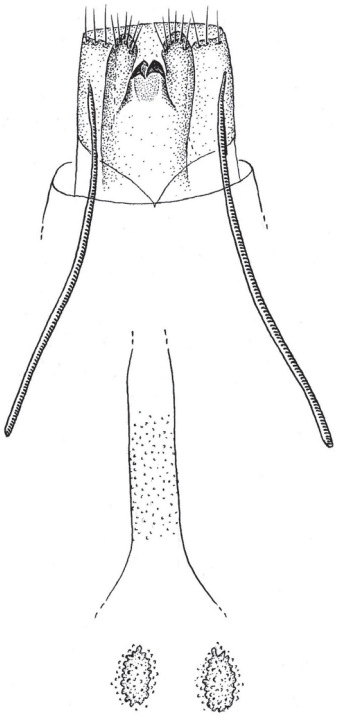


225, 225a

220. *Trichophaga scandinaviella* Zagulajev, 1960 – Iran – slide 7792 RG (LMK)
221. *Trichophaga bipartitella* (Ragonot, 1892) – Iran – slide 1986 RG (SMNK) (according to Gaedike & Karsholt, 2001)
222. *Trichophaga robinsoni* Gaedike & Karsholt, 2001 – Madeira – slide 5018 OK (ZMUC) (according to Gaedike & Karsholt, 2001)
223. *Elatobia fuliginosella* (Zeller, 1846) – Russia – slide 4769 RG (ZIN)
224. Elatobia montelliella (Schantz, 1951) – Canada – slide MIC6792 (CNC)
225. *Elatobia bugrai* Kocak, 1981 – Greece – slide 5404 RG (SDEI) (signum in higher magnification); a) signum in higher magnification: Greece – slide 262 GP (ZMHB)



226



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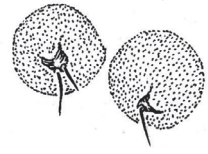
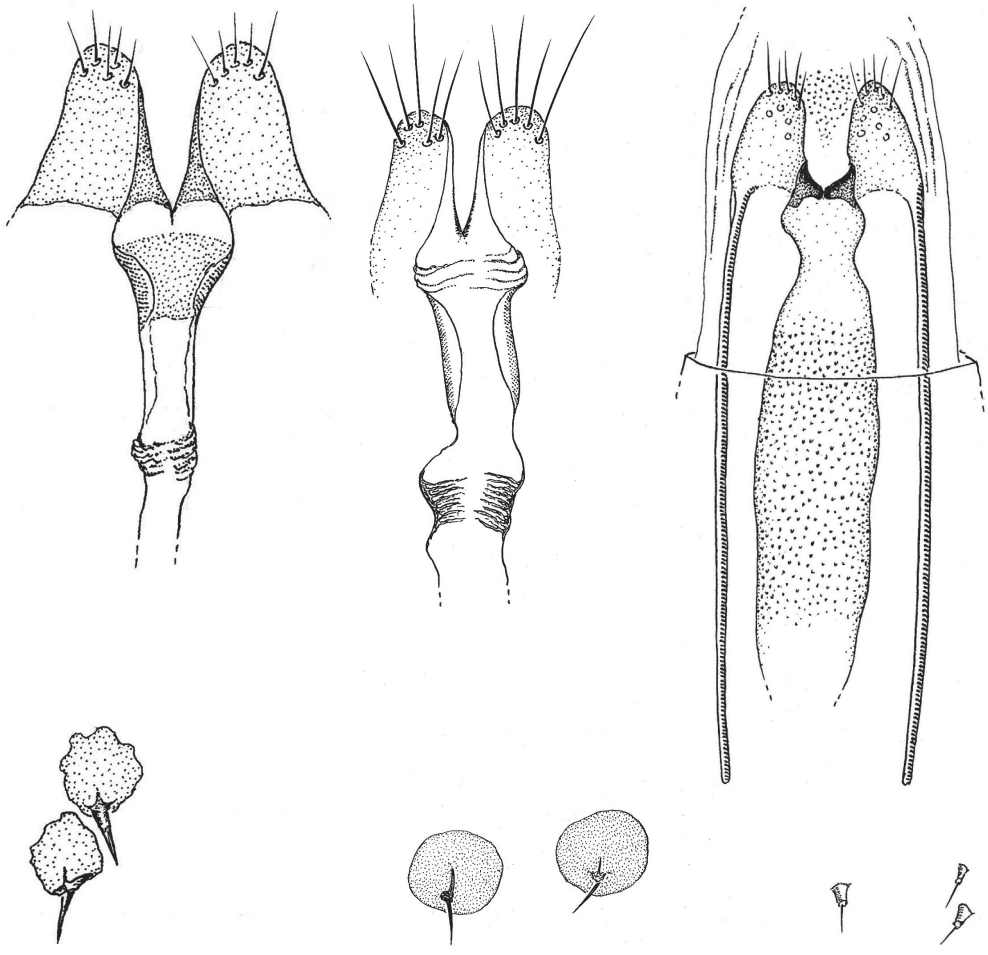
228



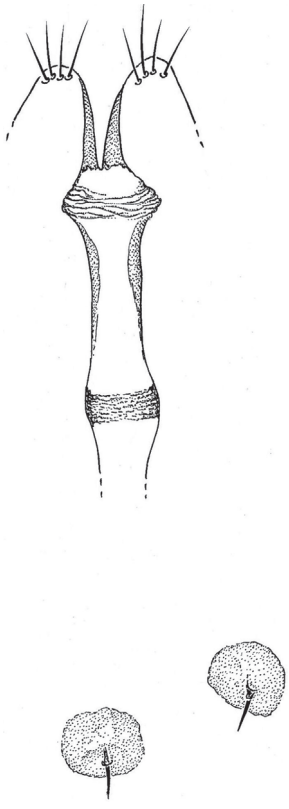
229

226. *Tineola bisselliella* (Hummel, 1823) – Germany – slide 320 GP (SDEI) (according to Gaedike & Karsholt, 2001)
227. *Praeacedes atomosella* (Walker, 1863) – Canary Island: La Palma – slide 2024 GP (SDEI) (according to Gaedike & Karsholt, 2001)
228. *Tinea flavescentella* Haworth, 1828 – Greece – slide 2003 RG (SDEI)
229. *Tinea pellionella* Linnaeus, 1758 – Czech Republic – slide 3254 GP (SDEI)



230 231 232

230. *Tinea translucens* Meyrick, 1917 – Italy (Sardinia) – slide 2034 RG (SDEI)
231. *Tinea murariella* Staudinger, 1859 – Israel – slide 2259 GP (SDEI)
232. *Tinea lanella* Pierce & Metcalfe, 1934 – Spain – slide 7607 RG (ZSM)



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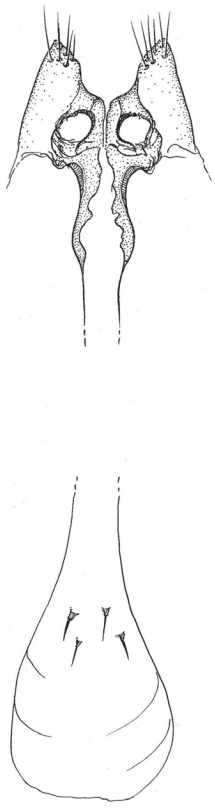

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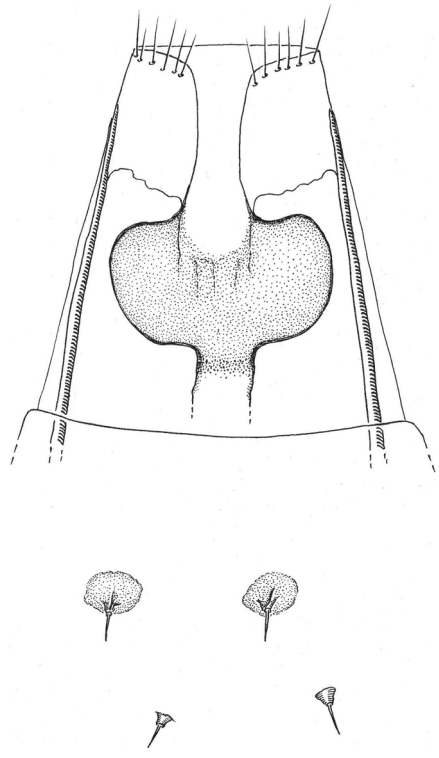
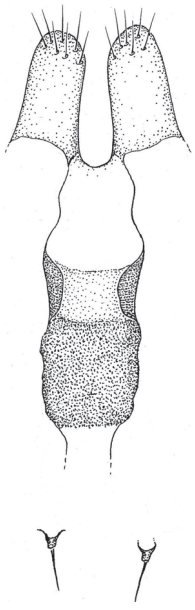


235

233. *Tinea messalina* Robinson, 1979 – Greece – slide 6222 RG (SDEI)
234. *Tinea dubiella* Stainton, 1859 – Germany – slide 1284 GP (SDEI) (according to Gaedike & Karsholt, 2001)
235. *Tinea steueri* Petersen, 1966 – Germany – slide 6218 RG (coll. Werno)



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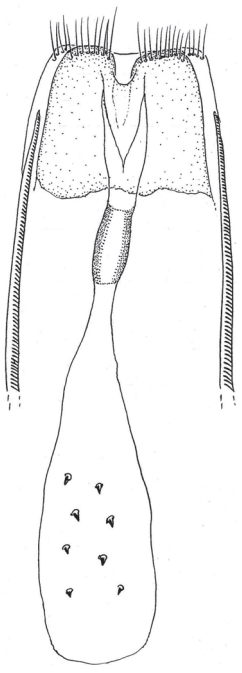

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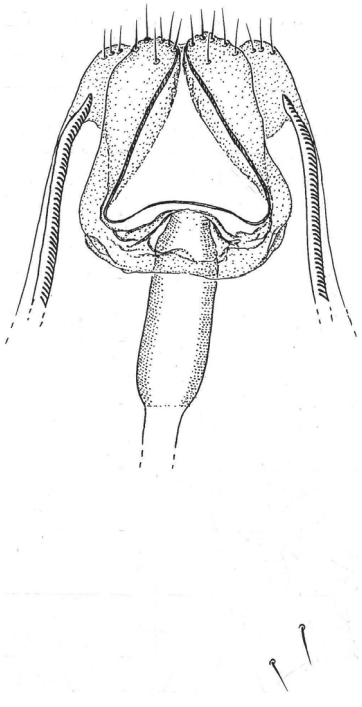

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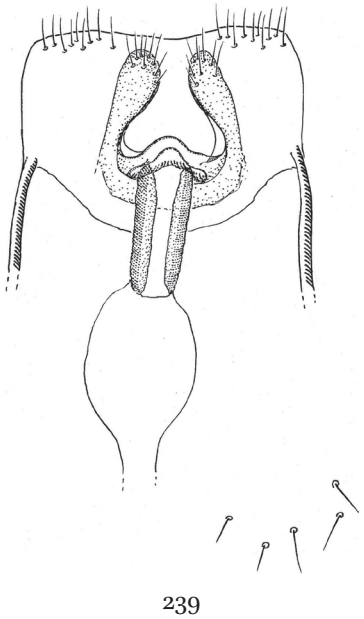
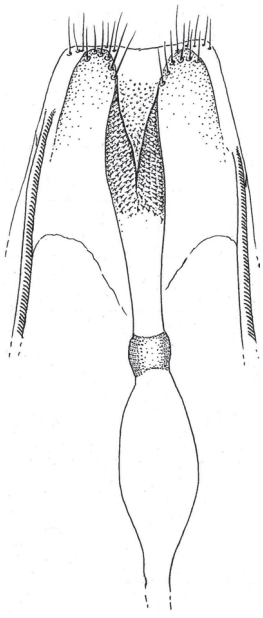


239

236. *Tinea bothniella* Svensson, 1953 – Finland – slide 5261 BÅB (coll. Bengtsson)
237. *Tinea basifasciella* Ragonot, 1895 – Canary Island: Gran Canaria – slide 1998 RG (SDEI)
238. *Tinea columbariella* Wocke, 1877 – Germany – slide 8555 RG (SDEI)
239. *Tinea svenssoni* Opheim, 1965 – Finland – slide 8535 RG (SDEI)



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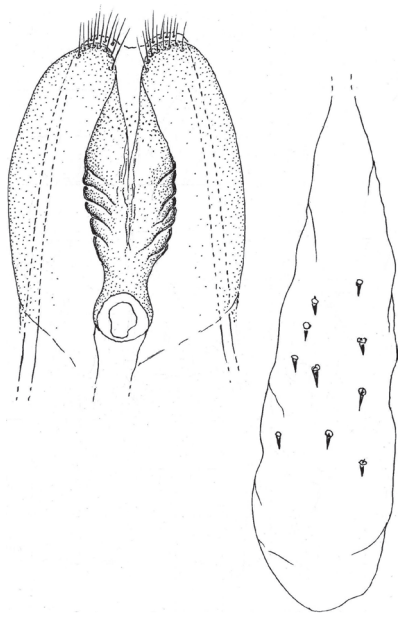

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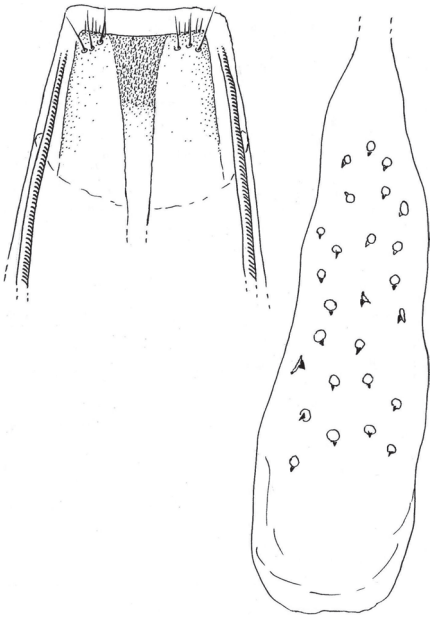

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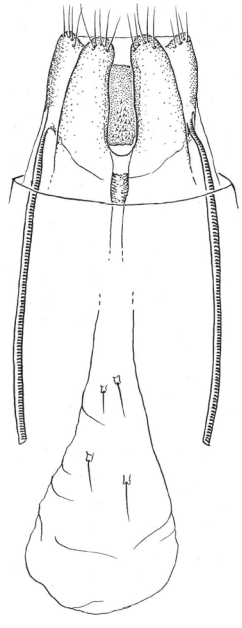
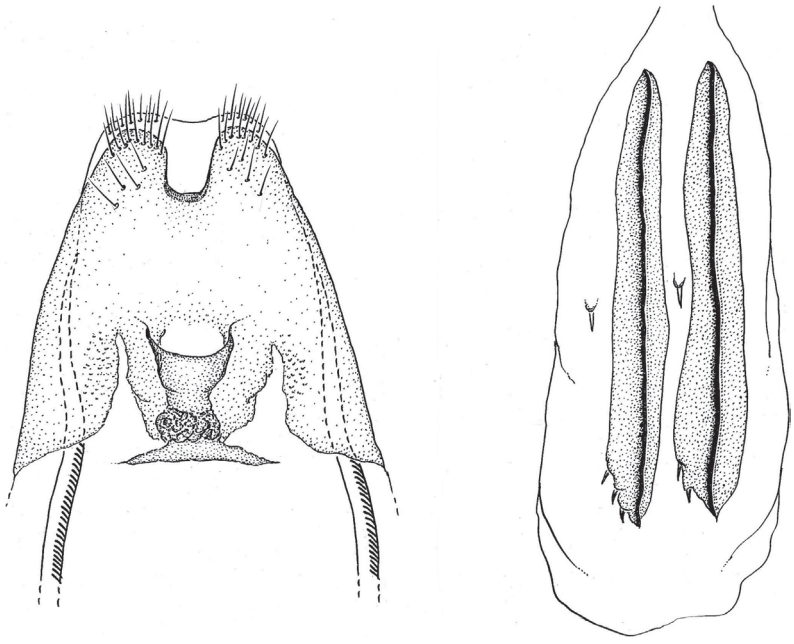
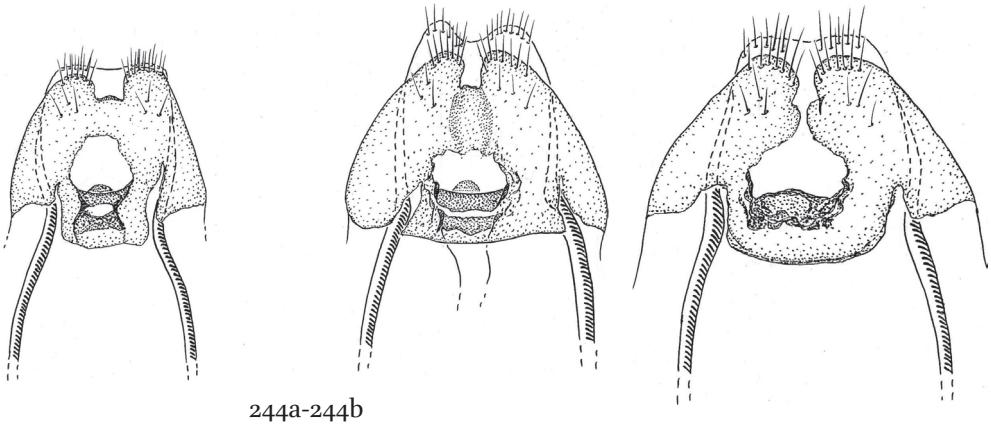


243

240. *Tinea pallescentella* Stainton, 1851 – Germany – slide 8566 RG (SDEI)
241. *Tinea omichlopis* Meyrick, 1928 – Mongolia – slide 8568 RG (SDEI)
242. *Tinea semifulvella* Haworth, 1828 – Russia – slide 255 GP (SDEI)
243. *Tinea trinotella* Thunberg, 1794 – Germany – slide 1987 GP (SDEI) (according to Gaedike & Karsholt, 2001)



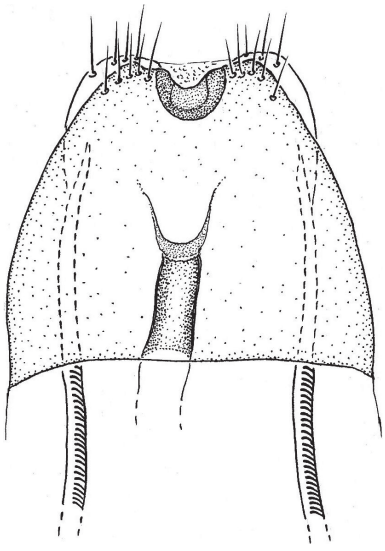
244



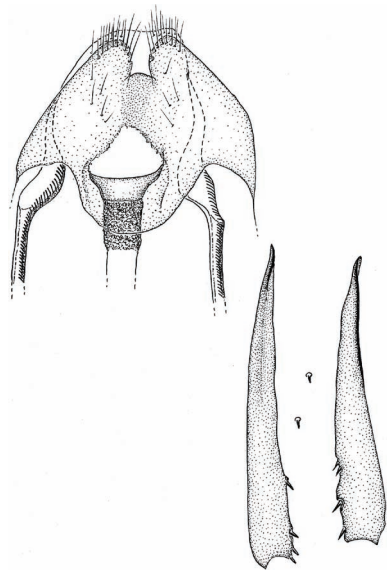
244a-244b

244c

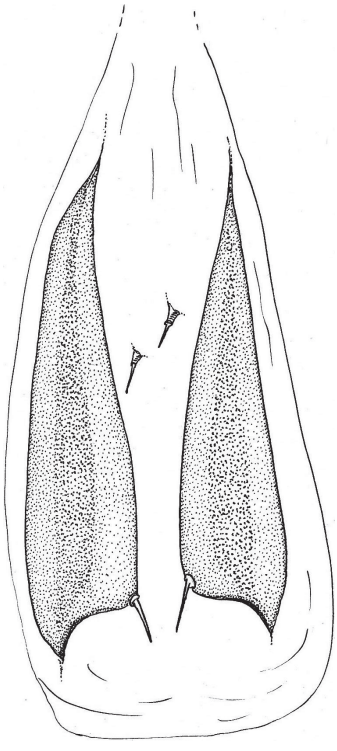
244. *Niditinea fuscella* (Linnaeus, 1758) – Italy – slide 2745 GP (SDEI); a) Italy – slide 8388 RG (MFSN); b) Italy – slide 8387 RG (MFSN); c) Slovenia – slide 272 GP (SDEI)



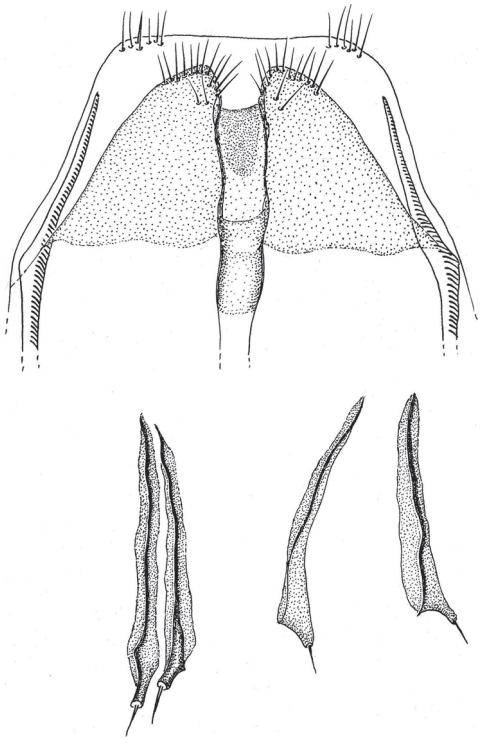
245



246



245a

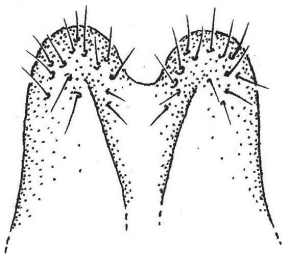


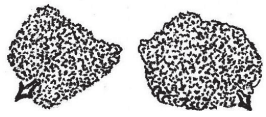
247

245. *Niditinea striolella* (Matsumura, 1931) – Germany – slide 6220 RG (coll. Werno); Bursa with signa: a) same slide

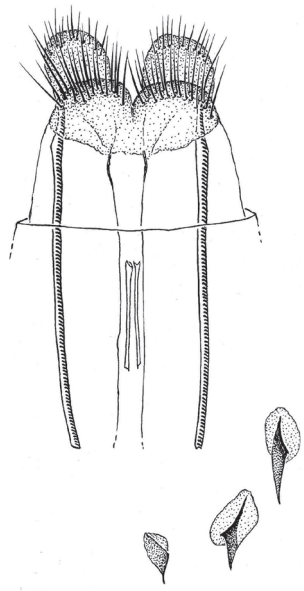
246. *Niditinea baryspilas* (Meyrick, 1937) – Iraq – slide 2843 GP (SDEI)

247. *Niditinea truncicolella* (Tengström, 1848) – Finland – slide 761 GP (SDEI); Signa separated: a) Russia – slide 8573 RG (SDEI)

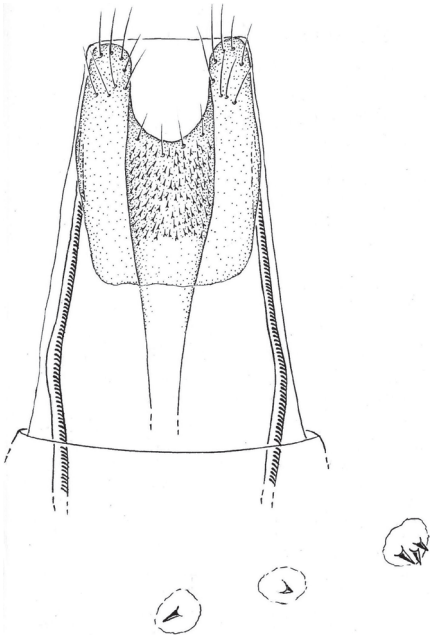




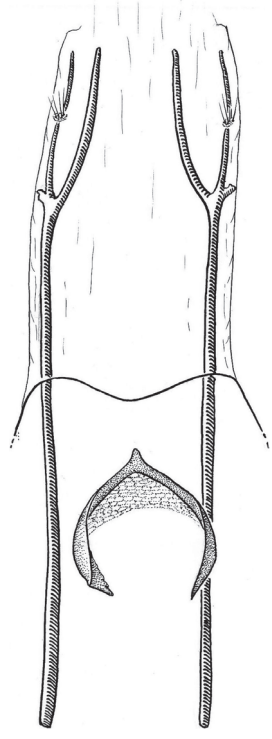
248



252

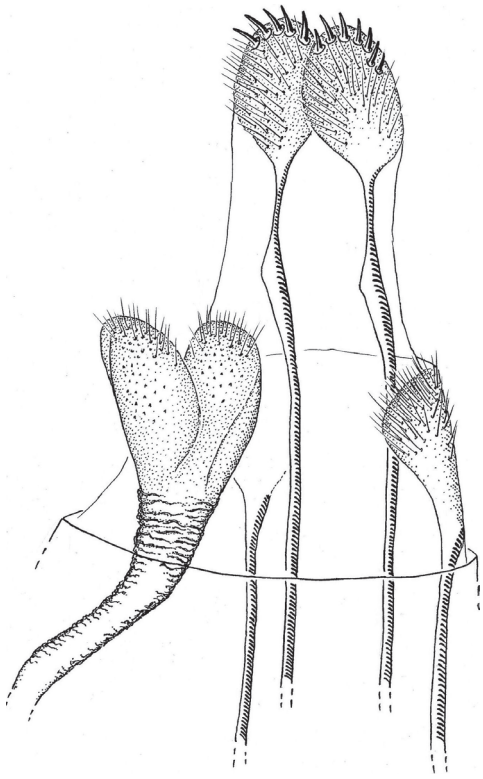


249, 249a

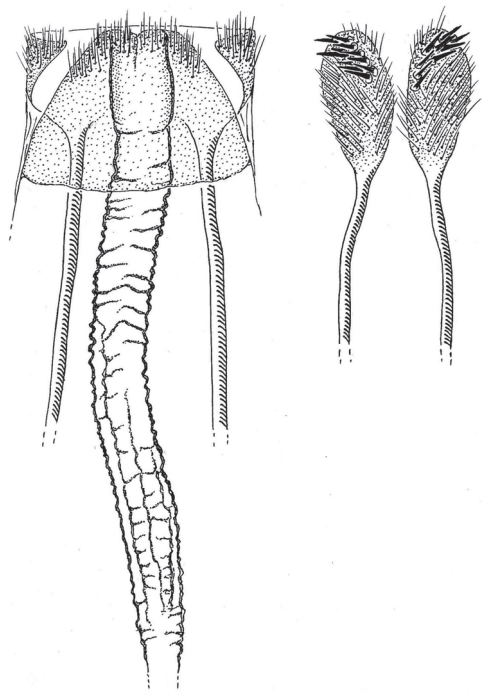


253

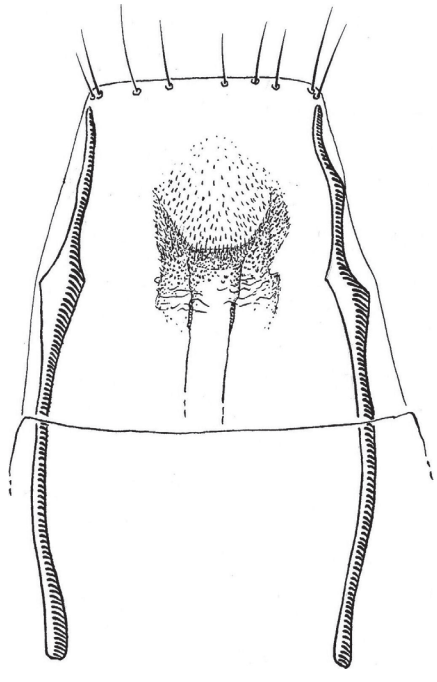
248. *Proterospastis merdella* (Zeller, 1852) – Spain – slide GP (ZMHB); signa in higher magnification (according to Petersen, 1957a)
249. *Proterospastis autochthones* (Walsingham, 1907) – Algeria – slide 6502 RG (SDEI); Signum: a) Algeria – slide 6502 RG (SDEI)
252. *Ceratobia oxymora* (Meyrick, 1919) – Canary Island: Tenerife – slide 7631 RG (SDEI)
253. *Metatinea immaculatella* (Rebel, 1892) – Canary Island: Tenerife – slide 2310 GP; (SDEI) (according to Petersen & Gaedike, 1979)



254

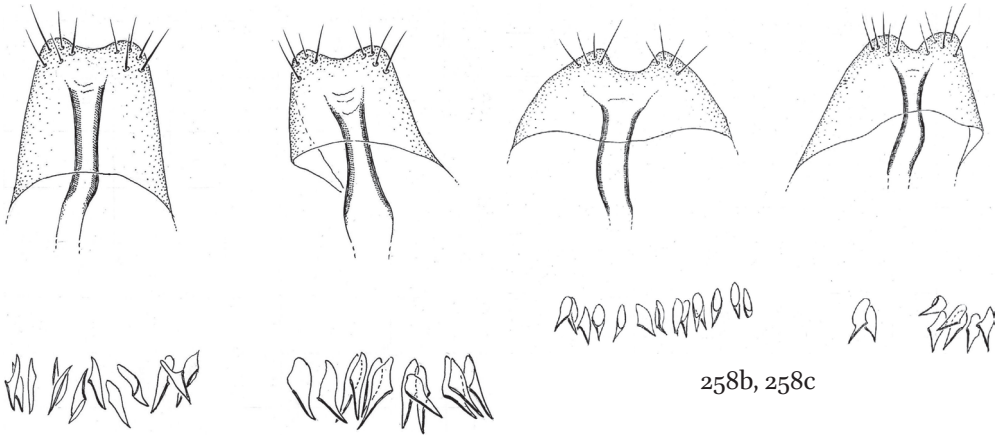


255



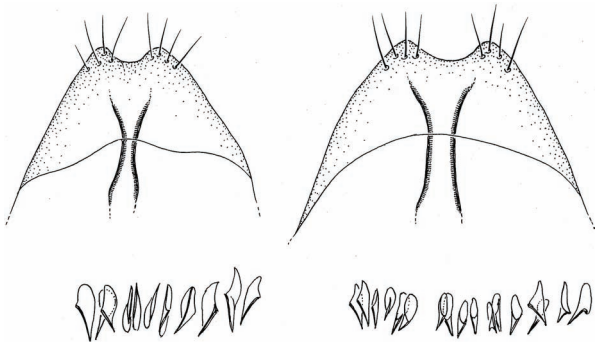
256

254. *Phereoeca allutella* (Rebel, 1892) – Canary Island: La Palma – slide 6581 RG (coll. Schmitz)
255. *Phereoeca lodli* Vives, 2001 – Spain – slide 6759 RG (SDEI)
256. *Montetinea tenuicornella* (Klimesch, 1942) – Croatia – slide 5357 RG (ZSM)



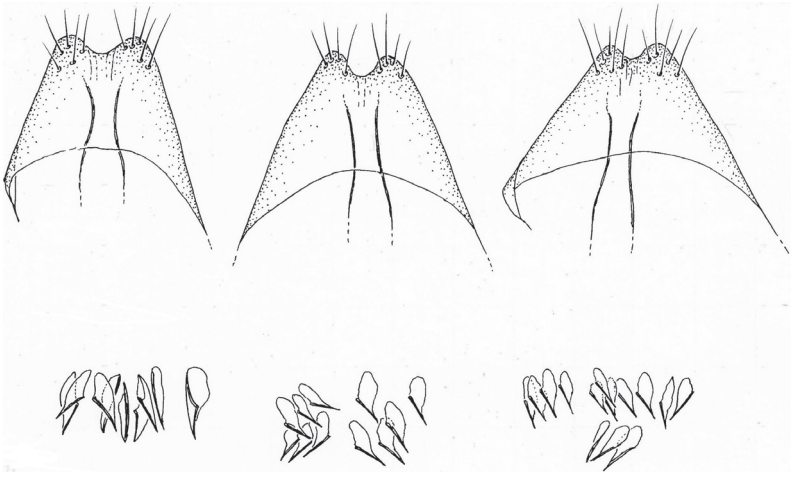
258b, 258c

258, 258a

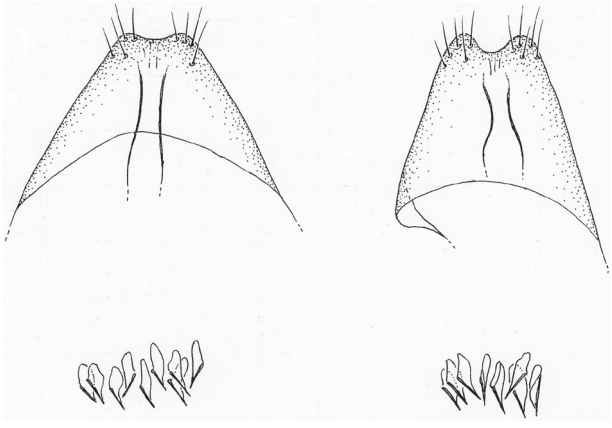


258d, 258e

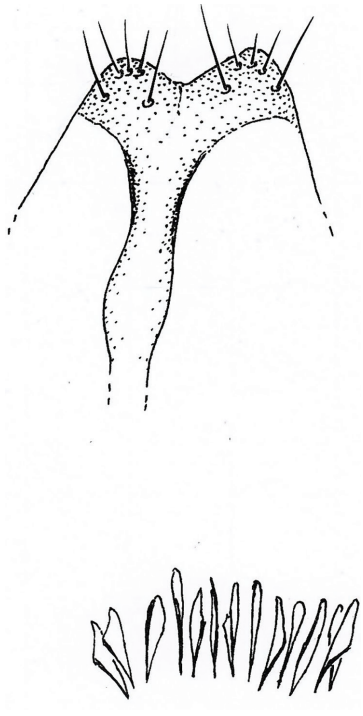
258. *Monopis laevigella* (Denis & Schiffermüller, 1775) – France – slide 110 GF (SDEI); a) Russia – slide 1225 GP (SDEI); b)–e) Finland – slides 8606; 8696; 8697; 8698 RG (SDEI)



259, 259a-259b



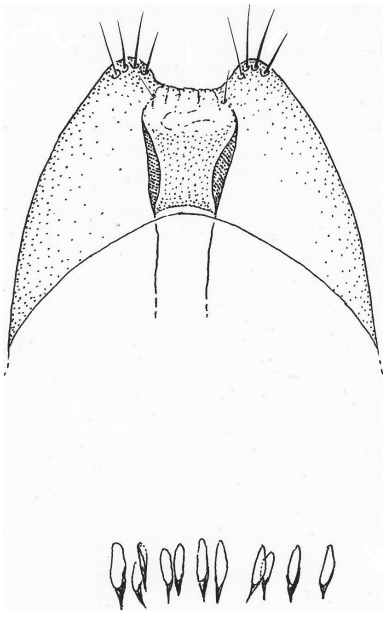
259c-259d



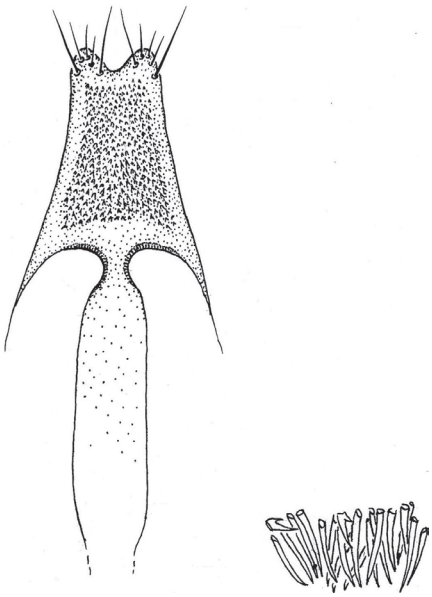
260

259. *Monopis weaverella* (Scott, 1858) – Slovenia – slide 5874 RG (SDEI); a)–d) Germany – slides 7659; 8694; 8695; 8693 RG (SDEI)

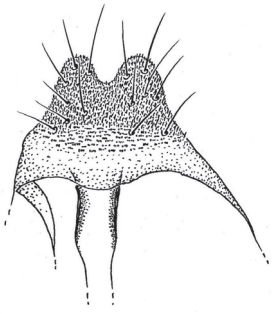
260. *Monopis neglecta* Šumpich & Liška, 2011 – Czech Republic – in vial JŠ (NMPC)

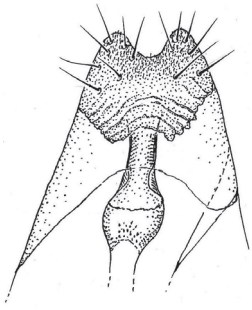


261

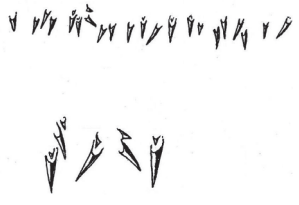


263



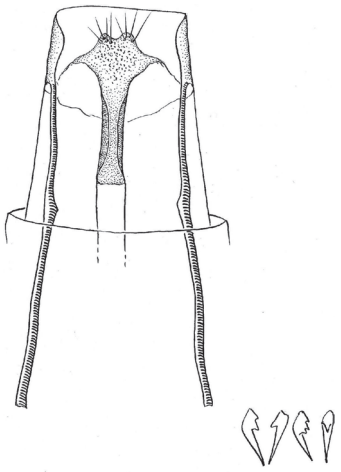


262

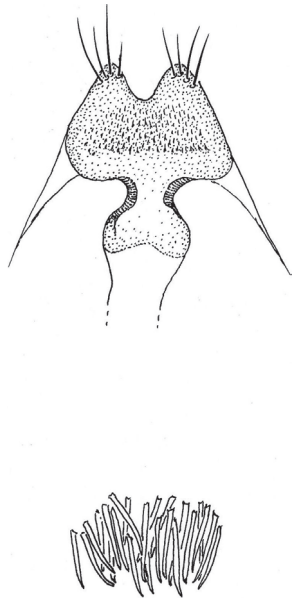


264, 264a

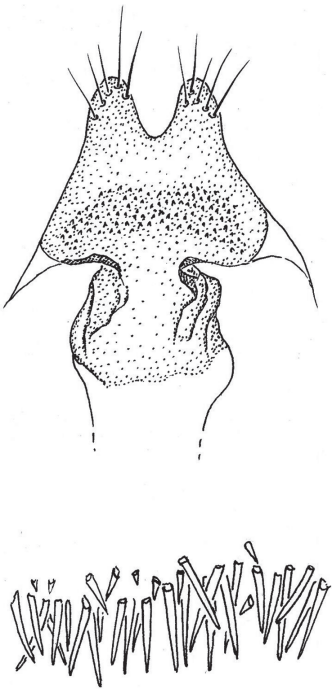
261. *Monopis spilotella* (Tengström, 1848) – Finland – slide 8740 RG (SDEI)
262. *Monopis burmanni* Petersen, 1979 – Austria – slide 2278 GP (SMNK)
263. *Monopis luteocostalis* Gaedike, 2006 – Russia – slide 8879 RG (according to Gaedike & Šumpich 2017) (SDEI)
264. *Monopis obviella* (Denis & Schiffermüller, 1775) – Germany – slide 289 GP (SDEI); Signa in higher magnification: a) same slide



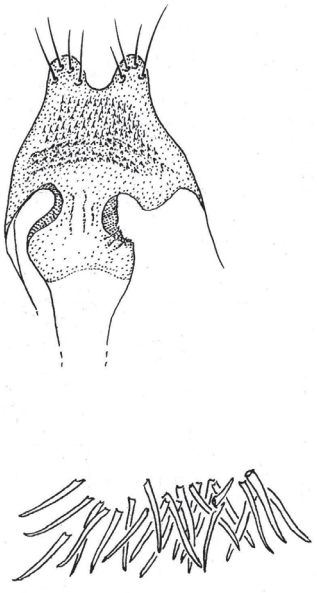
265, 265a

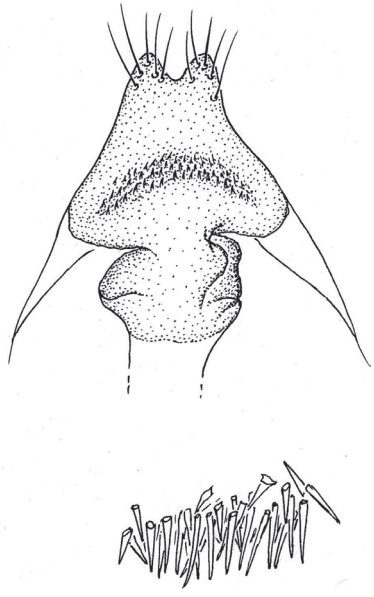


266



266a

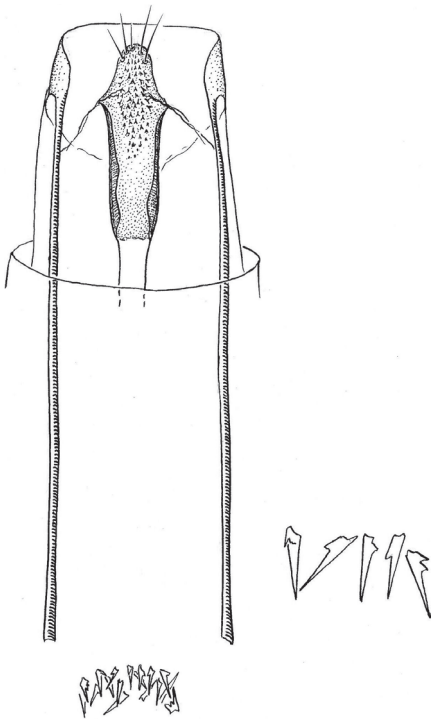




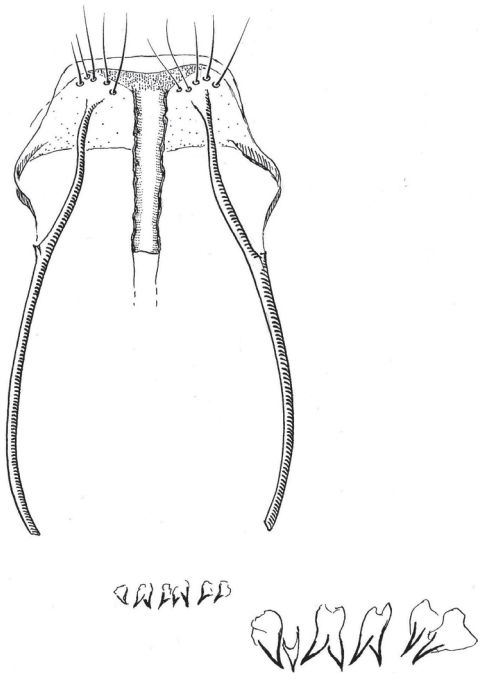
266b, 266c

265. *Monopis crocicapitella* (Clemens, 1859) – Italy – slide 246 GP (SDEI) (according to Gaedike & Karsholt, 2001); Signa in higher magnification: a) same slide

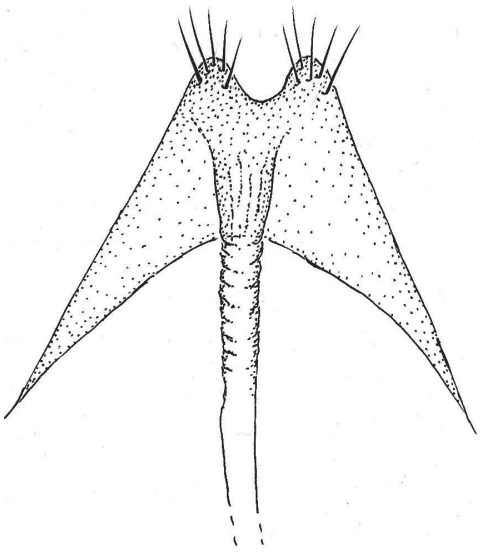
266. *Monopis imella* (Hübner, 1813) – France: Corsica – slide 129 GF (SDEI); a) Cyprus – slide 3866 RG (SDEI); b) Canary Island: Tenerife – slide 4167 RG (SDEI); c) Israel – slide 2258 GP (SDEI)



267, 267a



268, 268a



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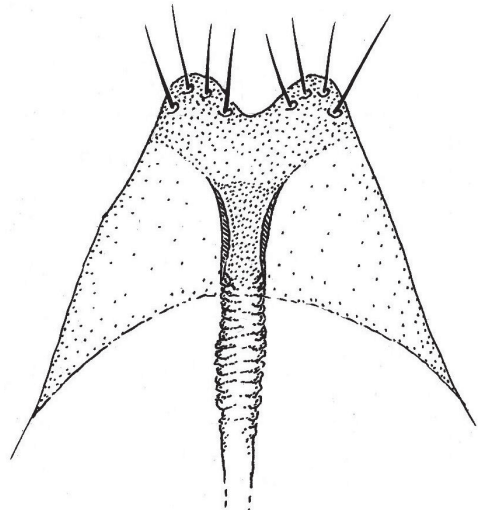
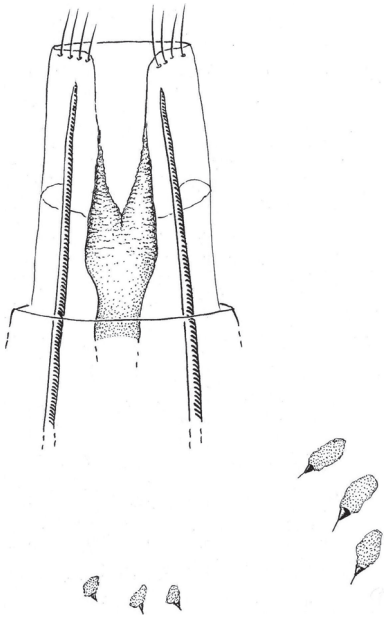


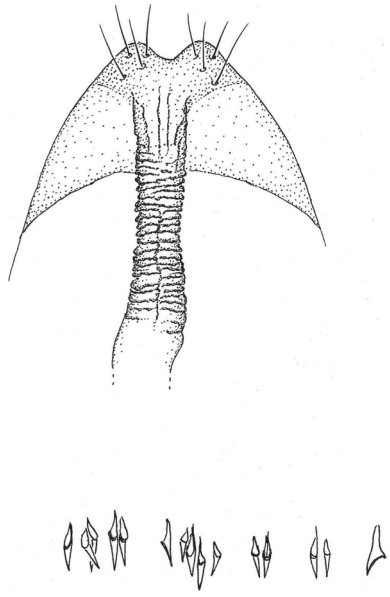
270

267. *Monopis nigricantella* (Millière, 1872) – France – slide 2277 GP (SDEI) (according to Gaedike & Karsholt, 2001); Signa in higher magnification: a) same slide
268. *Monopis henderickxi* Gaedike & Karsholt, 2001 – Madeira – slide 4815 RG (coll. Henderickx) (according to Gaedike & Karsholt, 2001); Signa in higher magnification: a) same slide
269. *Monopis christophi* Petersen, 1957 – Afghanistan – slide 2498 GP (SDEI)
270. *Monopis pallidella* Zagulajev, 1955 – Russia – slide 8224 RG (SDEI)

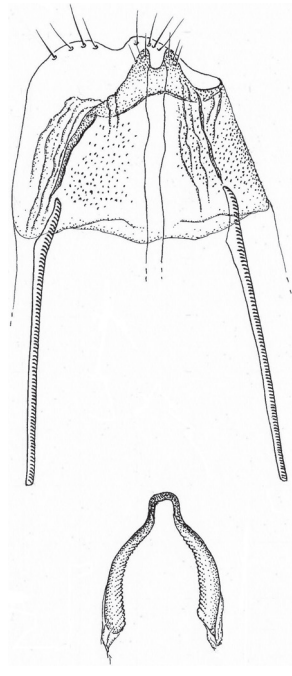
271



272, 272a

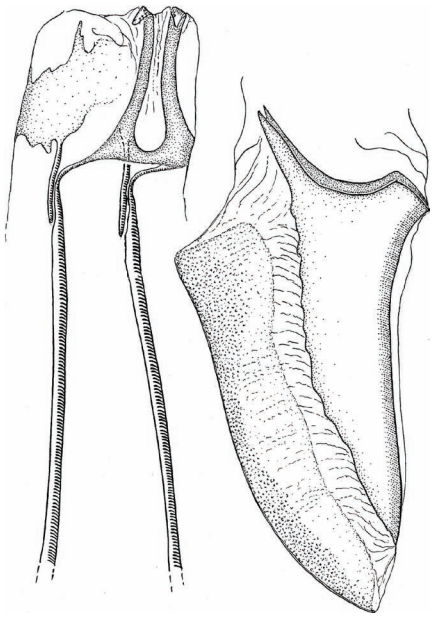


273

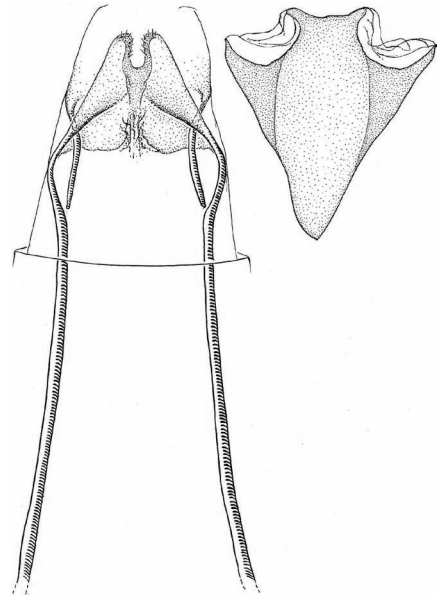


274

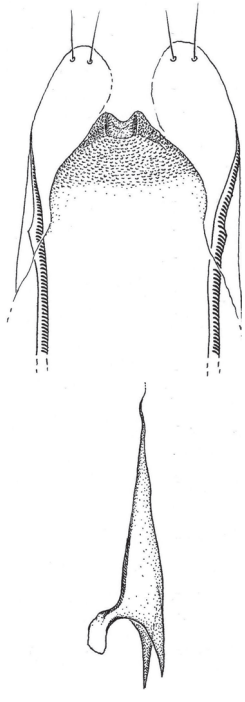
271. *Monopis barbarosi* (Kocak, 1981) – Madeira – slide 4527 BMNH (according to Gaedike & Karsholt, 2001); Genitalia in higher magnification: a) same slide
272. *Monopis fenestratella* (Heyden, 1863) – Germany – slide 7220 RG (ZMHB); Signa in higher magnification: a) Germany – slide 233 GP (SDEI)
273. *Monopis monachella* (Hübner, 1796) – Russia – slide 307 GP (SDEI)
274. *Pelecystola fraudulentella* (Zeller, 1852) – Sweden – slide 1231 BÅB (coll. Lindeborg)



275



276

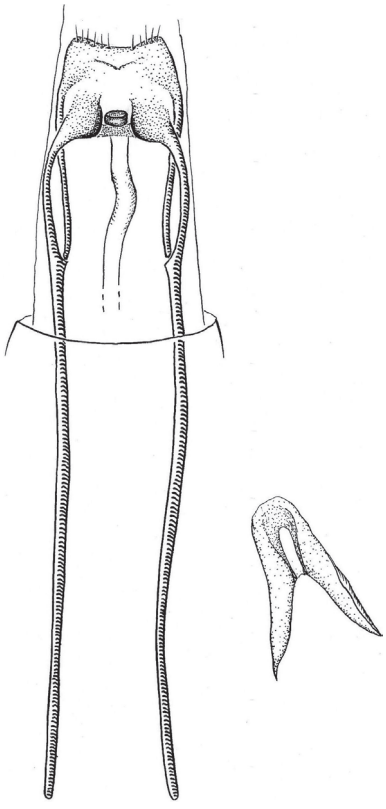


277

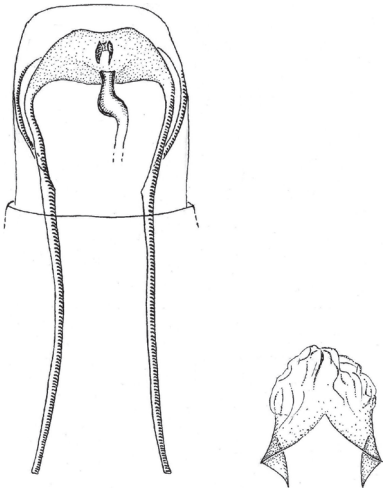
275. *Opogona sacchari* (Bojer, 1856) – Madeira – slide 4736 RG (ZMUC) (according to Gaedike & Karsholt, 2001)

276. *Opogona omoscopa* (Meyrick, 1893) – Madeira – slide 4737 RG (ZMUC) (according to Gaedike & Karsholt, 2001)

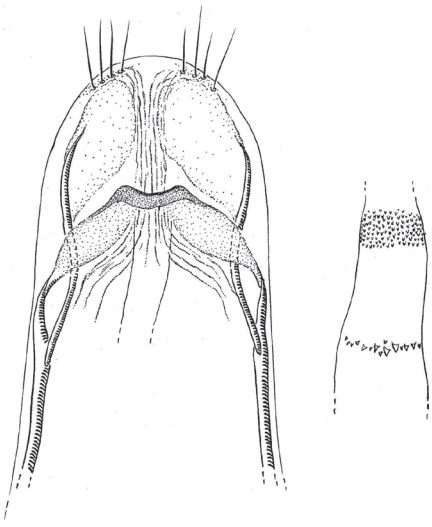
277. *Wegneria panchalcella* (Staudinger, 1871) – Greece – slide 6980 RG (SMNK)



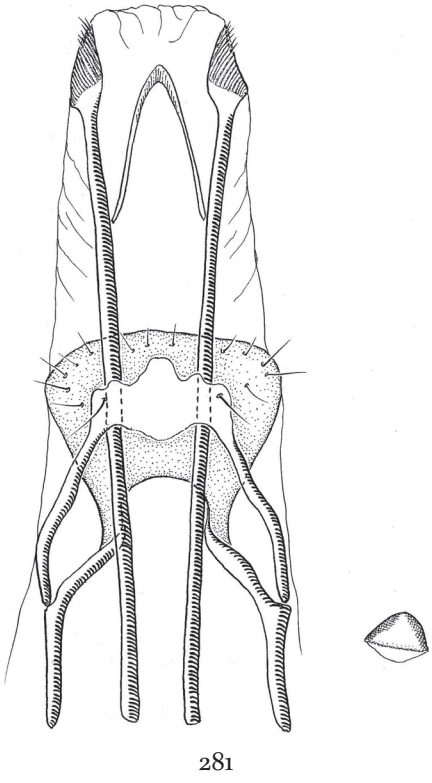
278



279

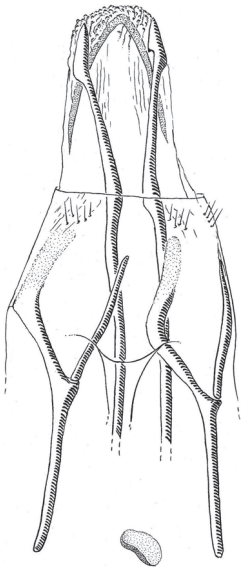


280

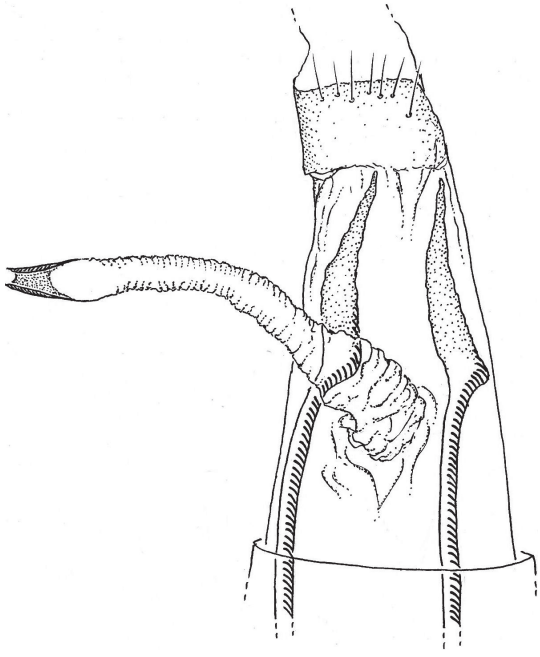


281

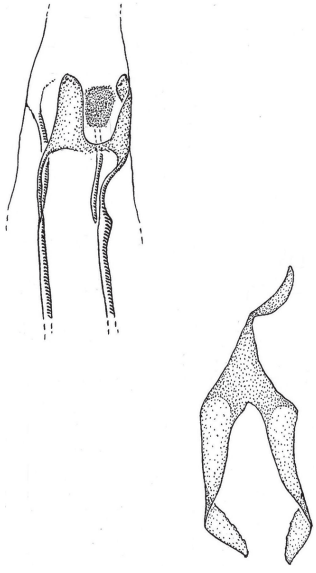
278. *Oinophila v-flava* (Haworth, 1828) – Madeira – slide 3857 OK (ZMUC) (according to Gaedike & Karsholt, 2001)
279. *Oinophila nesiotes* Walsingham, 1908 – Canary Island: La Palma – slide 7725 RG (ZSM)
280. *Amphixystis undosa* (Walsingham, 1908) – Canary Island: La Gomera – slide 6500 RG (ZSM)
281. *Teichobia filicivora* (Meyrick, 1937) – Madeira – slide 4734 RG (ZMUC) (according to Gaedike & Karsholt, 2001)



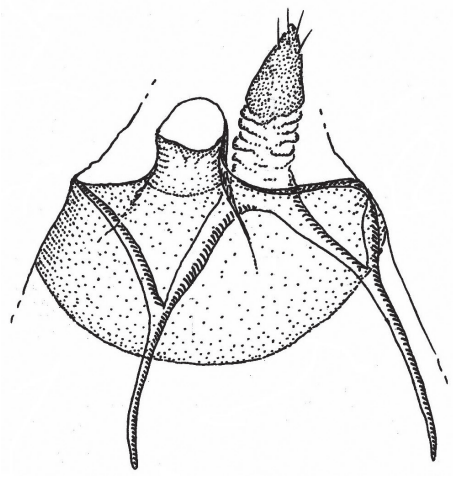
282



283



285



158

282. *Teichobia verhuella* (Bruand, [1854]) – Germany – slide 6978 RG (ZMNK)
283. *Stathmopolitis tragocoprella* Walsingham, 1908 – Canary Island: Tenerife – slide 7969 RG (ZSM)
285. *Oinophila blayi* Vives & Gastón, 2017 – Canary Island: Tenerife – slide 58091 Vives (MNCN)

Addition to volume 7:

158. *Infurcitinea romanica* Capuşe, 1966 – Bulgaria – slide 8631 RG (SDEI)

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Additions to Volume 7

Iinformation is given below on two European taxa, which were overlooked in preparation of volume 7.

Meessiidae

Eudarcia microptera Dominguez, 1996

Eudarcia microptera Dominguez, 1996: 101, figs 4.2–4.8

Only after publication of volume 7 (Tineidae I) I recieved through the kindness of Mr. Dominguez his PhD theses, in which he described *E. microptera*. Unfortunately, it was impossible to study specimens from the type series, because the collection of Tineidae in the University of Valencia was destroyed (Baixeras, pers. comm.).

According to the figures of the genitalia the species belongs near to *E. atlantica* Henderickx, 1995 and *E. sardoa* (Passerin d'Entrèves, 1978).

Concerning the validity Dr. Dominguez informed me: "The university has a copy of my PhD, in paper print, which is the original version, and available for consulting. But which is available for selling as the microfiche, was published a year later."

Tineidae

Pararhodobates Petersen, 1958

Pararhodobates Petersen, 1958: 404.

Type species: *Chimabacche ? syriaca* Lederer, 1857.

Description. See under *syriaca*.

Distribution. Two species, distributed in the Palaearctic region, are known. The species below is present in Europe.

Bionomics. A detailed description of life history of larvae of *P. syriaca* was given by Zagulajev (1975)(see below).

Pararhodobates syriaca (Lederer, 1857)

Chimabacche ? syriaca Lederer, 1857: 102.
Tineola macropodella Erschoff, 1874: 98, pl. VI, fig. 109.

Description. Wingspan of males 17–20 mm; females are brachypterous (Zagulajev, 1975b: fig. 88); head brush similar to genus *Rhodobates*, labial palpus with long hair-like scales on second segment, directed forward, third segment nearly invisble; antenna somewhat longer than half of the length of forewing; entire coloration greyish, forewing with scattered grey-brown patches and dots, some short patches on costa from 3/4 around apex and along termen, and a stripe along cell from 1/3 to 2/3, ending in a larger patch; hindwing light grey.

Male genitalia. (Petersen, 1958: fig. 260) Uncus medially with light emargination; gnathos arms separated, curved, with pointed tip; valva simple, long, without bridge like in *Rhodobates*; phallus small.

Female genitalia. Sternite VIII with deep U-shaped emargination, ostium without visible structures (Zagulajev, 1975b: figs 90–91).

Distribution. In Europe known from East and South European Russia (Zagulajev, 1975b; Anikin *et al.*, 2000); outside Europe known from Turkey (Kazikoporan = Karizman) and from Central Asia.

Bionomics. Zagulajev (1975b) described the life history in detail. Larvae live near the soil surface among roots and grasses and wormwood in tubular branched silken galleries, compactly covered with minute particles of loess. The underground galleries were often continued above surface in vertical protruding tubes (see Zagulajev, 1975b: 46, fig. 26A). The larvae pupates either in the vertical tube or in thicker walls in one of the branches of the gallery leading toward the surface, converting it into a long cocoon. Adults were observed in Central Asia in two generations – between February and April and between October and November.

Below, the taxa, which were described as new species after the publication of volume 7, are listed, together with new faunistical records or other interesting information to the species from that volume.

As was mentioned in the introduction, resulting from the reconstruction of lepidopteran phylogeny by Regier *et al.* (2014), the former subfamilies Meessiinae and Dryadaulinae in the Tineidae are now ranked as families. Below I follow this new order, but for easier reference to the volume 7, the previous numbering is unchanged.

Meessiidae

69 *Tenaga nigripunctella* (Haworth, 1828)

New records. Turkey: 1♂, Prov. Mugla, Marmaris, Turunc, 9.x.2015, leg. T. Baron: ZMHB;

1♂, Israel, Nahal Oren, Mt. Carmel, 27. v.1999, leg. Pavliček & Kravchenko, NMPC.

71 *Matratinea rufulicaput* Sziraki & Szöcs, 1990

New records. Croatia: Pelješac Peninsula (Šumpich, 2013); Greece: mainland: 1♀, Falakron Mts, Panorama, 700m, 8.vii.2007, leg. J. Viehmann, coll. Schmitz.

Nearby 81:

***Eudarcia* (*Meessia*) *prealpina* Varenne & Nel, 2017**

Eudarcia (*Meessia*) *prealpina* Varenne & Nel, 2017: 48, figs 5–10b.

Described in both sexes from France: Alpes-Maritimes.

Quite similar to *E. palanfreella* Baldizzone & Gaedike, 2004. Comparision of the drawings of the genitalia structures in the original description with genitalia slides of *palanfreella* shows only minute differences, which may only reflect intraspecific variation.

89 *Eudarcia hedemanni* (Rebel, 1899)

New record. Switzerland: 1♀, Tessin, Caslano Tarnazza, 280m, 14.vi.2013, leg. D. Bolt, det. Wittland, coll. Bolt.

Muus (2016) listed this species as a new record for Belgium (Aische-en-Refail (prov. Namen), 13.vi.2015, leg. Fam. Raison). Without examination of the genitalia structures this record can not be confirmed.

95 *Eudarcia balcanicum* (Gaedike, 1988)

New records. Bulgaria, 1♂, Asenovgrad, Ba kovo, 17.vii.1974, leg. V. Felix; 1♂, 40km SE Burgas, Ropotamo, 26.–27.vi.2001, leg. J. Junnilainen, coll. Junnilainen; 1♂, Rhodope Mts, above Trigrad, 1240m, 4.viii.2013, leg. O. Karsholt & B. Zlatkov, ZMUC.

103 *Eudarcia croaticum* (Petersen, 1962)

New record. Slovenia, 1♀, Osp, leg. J. Šumpich, NMPC.

105 *Eudarcia glaseri* (Petersen, 1967)

Recent study (Bidzilya *et al.*, 2016) shows, that only the specimens from Spain and France belong to this taxon. The other records under this name (Greece, Turkey, Crimea) belong to other taxa (see below). The colour picture 105b and fig. 105 (female genitalia) in Gaedike (2015b) belong to *E. armatum* (Gaedike, 1985). Fig. 15 in Bidzilya *et al.*, 2016 shows the true female of *E. glaseri*.

The following three species are quite similar to *E. glaseri*, clearly distinguishable only in the genitalia structure.

***Eudarcia saxatilis* Bidzilya, Budashkin & Gaedike, 2016**

Eudarcia saxatilis Bidzilya, Budashkin & Gaedike, 2016: 551, figs 4, 12.

Described from Crimea (holotype).

***Eudarcia abchasicum* (Zagulajev, 1979)**

Obesoceras (*Abchagleris*) *abchasicum* Zagulajev, 1979: 372, figs 313–319.

Recent study (Bidzilya *et al.*, 2016: 554, figs 5, 13, 16) shows, that this species is a valid species and not a synonym of *E. glaseri*.

***Eudarcia ignorata* Bidzilya, Budashkin & Gaedike, 2016**

Eudarcia ignorata Bidzilya, Budashkin & Gaedike, 2016: 557, figs 6–7, 14–14a, 17–17a.

Described from Greece Islands (Samos, Crete) and Turkey, previously indicated as *E. glaseri*.

106 *Eudarcia armatum* (Gaedike, 1985)

A longer series from Greece: Peloponnes, Zachlorou (Kalavryta) contains females for the first time and allows the description of its genitalia (Bidzilya *et al.*, 2016: 558, fig. 18).

112 *Infurcitinea rumelicella* (Rebel, 1903)

New record. Macedonia, 1♂, Dolovi, 2.vii.2012, leg. I. Richter, NMPC.

113 *Infurcitinea sardica* (Amsel, 1952)

New record. France: Corsica, 1♀, Patrimonia, 1.-10.vii.2012, leg. B. Wikström, SDEI.

114 *Infurcitinea graeca* Gaedike, 1983

New record. Bulgaria, 1♀, 5km N Sandanski, Ilindentsi, 31.vii.–9.viii.2012, leg. O. Karsholt, ZMUC.

116 *Infurcitinea tauridella* Petersen, 1968

New record. Greece: Crete, 1♀, 1,7km S Topolia, 15.–19.vi.2014, 360m, leg. C. Hviid, O. Karsholt & F. Vilhelmsen, ZMUC.

125 *Infurcitinea ignicomella* (Heydenreich, 1851)

New record. Bulgaria, 1♀, E. Rila Mts, Chalet Granchar, 2150–2250m, 6.-7.viii.2013, leg. O. Karsholt & B. Zlatkov, ZMUC.

137 *Infurcitinea frustigerella* (Walsingham, 1907)

New record. Israel, 1♂, Negef centr., Nahal Haro'a, 15.i.2000, leg. T. Pavliček, NMPC.

138 *Infurctitinea italica* (Amsel, 1954)

New record. France: Corsica (Varenne & Labonne, 2018).

141 *Infurcitinea turcica* Petersen, 1968

Second record for Europe: Greece: Samos, 3♂, 1km S Spatharei, 700m, 3.-5.vi.2012, leg. C. Hviid & B. Skule, ZMUC.

Nearby **142**:

***Infurcitinea restonicae* Varenne & Nel, 2016**

Infurcitinea restonicae Varenne & Nel, 2016: 55, figs 12–13.

Described from France: Corsica (Corte, Restonica). The genitalia structures are similar to *I. hellenica* Gaedike, 1997.

after **143:**

***Infurcitinea paratrifasciella* Varenne & Nel, 2018**

Described from France: Pyrénées-Orientales (Varenne & Nel, 2018).

New records. Spain, 2♂, Huesca, 10km S Candasnos, 30.v.2015, leg. J. Viehmann, coll. Schmitz; SDEI.

144 *Infurcitinea teriolella* (Amsel, 1954)

New record. Belgium (Muus, 2015b).

152 *Infurcitinea karadaghica* Zagulajev, 1979

New record. Russia, 1♂, S Ural, Orenburg distr., 40km W Orsk, Guberlja village, 12.–13.vii.2015, leg. H. Roweck & N. Savenkov, coll. Roweck.

158 *Infurcitinea romanica* Capuşe, 1966

Recently it was possible to examine additional material from Bulgaria:

1♂, Pirin Mts, Popovi Levadi, 3.viii.2012, leg. O. Karsholt; ZMUC; 9♂, 4♀, Pirin Mts, Oreliak, 1650–1950m, 9.viii.2013, leg. O.

Karsholt & B. Zlatkov, ZMUC; SDEI; 3♂, 1♀, Blagojevgrad, Popori Livadi, 1415m, 8.viii.2013, leg. A. Kopp, coll. Kopp.

The examination of this additional material allowed me to change the image of the adult from volume 7 (plate 5: 158) to a new image (plate 8: 158) and to publish a drawing of the female genitalia (last plate of female genitalia: 158).

162 *Infurcitinea argentimaculella* (Stainton, 1849)

New record. France: Corsica (Varenne & Labonne, 2018).

163 *Infurcitinea monteiroi* Amsel, 1957

First records beside the type locality and first larval host: Portugal: Beira Litoral: Sardeira, cases on lichen (*Leprocaulon microscopicum*), 22.xi.2009; adults by day, 29.vi.2014, leg. Corley; Beira Alta: Guarda, in house, v.2014, leg. Romao, det. Corley. (Corley *et al.* 2015).

170 *Novotinea klimeschi* (Rebel, 1940)

New record. Bulgaria, 1♀, Rhodope Mts, above Trigrad, 1240m, 4.viii.2013, leg. O. Karsholt & B. Zlatkov, ZMUC.

175 *Stenoptinea cyaneimarmorella* (Millière, 1854)

New records. Azerbaijan, 1 specimen (without abdomen), Lenkoran, Aurora, 5.viii.1987, leg. et coll. Ivinskis; Cyprus. 1♂, Northern part, Selvili Tepe/above Kozan, 10.x.2015, 650m, leg. C. Hviid & B. Skule, ZMUC; other records see (Barton, 2018). Croatia, Pag, Novalija; Biograd (Šumpich, 2013).

176 *Karsholtia marianii* (Rebel, 1936)

New record. The Netherlands (Muus, 2016).

177 *Agnathosia mendicella* (Denis & Schiffermüller, 1775)

Bionomics. In Germany (Bavaria) were found numerous specimens, attracted by pheromones for *Synanthedon cephiformis* (Haslberger *et al.*, 2017).

180 *Novotinea reinhardella* Nel, 2014

New record. Egypt, 1♂, Kahira-Garden City, 2.xii.1972, leg. V. Zouhar, ZFMK.

Dryadaulidae

1 *Dryadaula caucasica* (Zagulajev, 1970)

The trunks (*Populus nigra* L. and conifer trees) from the collection place in Halland, Halmstadt (Oceanhammen) were used for production of pellets, and the species, which was never native here, may be extinct in Sweden (Bengtsson, 2016).

New record. Latvia (Aarvik *et al.*, 2017).

4 *Dryadaula minuta* Gaedike, 2007

New records. Israel, 2♂, Nahal Oren, Mt. Carmel, 19.vi.1998, 27.v.1999, leg. Pavliček & Kravchenko; NMPC, SDEI.

8 *Dryadaula nedae* (Gaedike, 1983)

New records. Bulgaria, 1♂, 15km N Sandanski, Ilindentsi, 500m, 31.vii.2012, leg. O.Karsholt; ZMUC; Israel, 2♂, Nahal Oren, Mt. Carmel, 27.v., 3.vi.1999, leg. Pavliček & Kravchenko, NMPC.

Tineidae

16 *Montescardia tessulatellus* (Zeller, 1846)

New records. Belgium (Muus, 2015b); Denmark (Aarvik *et al.*, 2017).

17 *Scardia boletella* (Fabricius, 1794)

New record. The species was found in Denmark: Randers Havn, 17.vi.2014, leg. Graversen (and later), on wood, imported from East Europe (Graversen, 2015; Buhl *et al.*, 2016).

18 *Morophaga morellus* (Duponchel, 1838)

New records. Hungary and Montenegro (Szabóky, 2012); Israel: 1♀, Golan Heights, Masd el Shams, 26.viii.2000, oak forest, leg. T. Pavliček, NMPC.

21 *Triaxomera baldensis* Petersen, 1983

New records. France: Alpes Maritimes (Nel & Varenne, 2016a); Lithuania: 1♂, Kaunas, Botanical garden, 5.–7.v.2016, on pheromone for *Cydia lobarzewskii*, leg. P. Ivinskis & J. Rimasaite, coll. Ivinskis.

26 *Nemapogon nevadella* (Caradja, 1920)

New records. Spain: 1♂, Canary Island, La Palma, Los Llanos de Aridane, Barranco de las Augustias, 30.v.2016, leg. A. Werno, coll. Werno; 1♀, Canary Island La Palma, Barranco de las Augustias, 2.vi.2016, leg. A. Stüber & A. Werno, ZSM.

27 *Nemapogon inconditella* (Lucas, 1956)

New record. Latvia (Aarvik *et al.*, 2017).

28 *Nemapogon agenjoi* Petersen, 1959

One specimen was found among the undetermined material in the collection of Bo Wikström:

1♂, RU: Belgorod Obl., Borisovka, 17.-23. vi.2015, leg. K.E. Lundsten & B. Wikström, Gen. Präp. [genitalia slide] 9395 RG.

As the species is hitherto known only from the Mediterranean area from Iberian Peninsula, France and Italy and from Morocco, the recent record is doubtful, more material needs to confirm it, may be it could be a mislabelling.

Nearby **28**:

***Nemapogon peslieri* Varenne & Nel, 2017**

Nemapogon peslieri Varenne & Nel, 2017b: 107, figs 3, 5a.

Described from France (holotype female: Alpes Maritimes; paratype female: Bouches-du-Rhône). Quite similar to *N. agenjoi*.

Nearby **31**:

***Nemapogon phoenicica* Gaedike & Kullberg, 2016**

Nemapogon phoenicica Gaedike & Kullberg, 2016: 147, figs 1–5c.

Described from Lebanon (holotype), Israel, Turkey, Cyprus.

***Nemapogon inexpectata* Varenne & Nel, 2017**

Nemapogon inexpectata Varenne & Nel, 2017a: 50, figs 12–13.

Description based on only one female from France (Var). Further studies and additional material are needed to clarify the validity of this taxon.

36 Nemapogon hungaricus Gozmány, 1960

New records: Russia. 2♂, Belgorod Obl., Gupkinskyi r.-n, Jamskaja Step, 16.viii.2015, leg. K.E. Lundsten & B. Wikström, coll. Wikström.

37 *Nemapogon fungivorella* (Benander, 1939)

New record. Hungary: Fazekas (ed.), 2016.

43 Nemapogon gliriella (Heyden, 1865)

New record. Poland. (Dobrzanski *et al.*, 2016).

Nearby **46**:

***Nemapogon shamica* Gaedike & Kullberg, 2016**

Nemapogon shamica Gaedike & Kullberg, 2016: 148, figs 6–7h.

Described from Lebanon (holotype) and Cyprus, hitherto only females are known.

New records. Israel: 2♀, Nahal Oren, Mt. Carmel, 21.viii.1998, leg. Pavliček & Kravchenko, NMPC.

46 *Nemapogon signatellus* Petersen, 1957

New records. Israel: 2♂, Nahal Oren, Mt. Carmel, 17.v.1997, 29.ix.1998, leg. Pavlicek & Kravchenko; MNHP; 1♂, Haifa-Carmelia, 10.v.2000, leg. T. Pavliček, NMPC.

56 *Nemapogon levantinus* Petersen, 1961

New record. Bulgaria: 1♂, Bulgaria or. ientalis Obzor, 15.vii.1980, leg. F. Krampl, NMPC

60 *Nemapogon falstriella* (Haas, 1881)

New records. France: Corsica: 1♀, 3km SE of Bonifacio, 1km N of Capo Pertusato, 23.ix.2003, leg. P. Skou, ZMUC; Azerbaijan,

1♂, Lenkoran, Aurora, 5.viii.1987, leg. et coll. Ivinskis.

63 *Triaxomasia caprimulgella* (Stainton, 1851)

New records. Bulgaria: 1♀, Kjustendil, Rila, Hotel Valdis, 7.viii.2013, leg. A. Kopp; coll. Kopp.; Latvia (Aarvik *et al.*, 2017).

64 *Gaedikeia kokkariensis* Sutter, 1998

New records. Bulgaria: 1♂, Nova Lovcha, 800m, 7.viii.2013, leg. O. Karsholt & B. Zlatkov, ZMUC; Portugal (Corley *et al.*, 2018).

65 *Neurothaumasia ankerella* (Mann, 1867)

New record. Kazakhstan, 1♂, European part: Dzhanibek env., 26.–27.vi.1999, leg. V. Karalius & J. Miatleuski, coll. Ivinskis.

67 *Neurothaumasia macedonica* Petersen, 1962

New record. Italy: Sardinia: 1♀, Azzanido, 24.–25.v.2017, leg. A. Werno, coll. Werno

68 *Neurothaumasia tenuipennella* Gaedike, 2011

New records. Italy: 1♂, Verona, Tignale (Lago di Garda), 600 m, 20.–31.vii.2015, leg. A. Schreurs, SDEI; Bulgaria: 1♂, 15km N Sandanski, Ilindentsi, 500m, 3.viii.2012, leg. O. Karsholt, ZMUC.

Index to Entomological Names (Genus, Tribe, Subfamily)

The numbers refer to the page numbers. Synonyms are in Italics. The taxa, listed in the additions to volume 7 (page 235ff.), are in **Bold.**

Abacobia 47
Acedes 52
Agnathosia 239
Amphixystis 108
Anemallota 22
Anomalotinea 39
Antitinea 51
Aphimallota 22
Ateliotini 7
Ateliotum 14
Autoses 52

Bilobatana 27
Blabophanes 85
Blabophaninae 31

Cachura 101
Cephimallota 21
Cephimallotini 7
Cephitinea 21
Ceratobia 78
Ceratuncini 7
Ceratuncus 31
Chrysoryctis 27
Cilicorneola 40
Coeliometopa 108
Conchyliospila 101
Crassicornella 29
Craterombris 14
Cylicobathra 27

Dendroneura 101
Dendroneurinae 101
Dietzia 47
Dryadaula 239; 240
Dulcana 8
Dysmasia 14
Dystinea 52

Edosa 27
Elatobia 47
Episcardia 27
Episcardiini 27
Eudarcia 235; 236; 237
Eusynopa 85
Exala 101

Fermocelina 39
Flavida 8

Gaedikeia 242
Gephyristis 108

Haplotinea 19
Haplotineini 7
Hieroxestides 101
Hieroxestinae 101
Hieroxestis 101
Hilaropterini 7
Hyalospila 85
Hylophygas 14
Hyoprora 14

Infurcitinea 237; 238; 239

Karsholtia 239

Lambrosetia 109
Lozostoma 101

Machimostola 108
Matratinea 236
Metarsiora 14
Metatinea 80
Mnesipatris 109
Monopidae 31
Monopina 86
Monopis 85
Montescardia 240
Montetinea 84
Morophaga 240
Myrmecozela 8
Myrmecozelinae 7

Nemapogon 240; 241
Neoepiscardia 27
Neurothaumasia 242
Neurozestis 100

Niditinea 71
Novotinea 239

Oenophila 106
Oenophilidae[sic] 101
Oinophila 105
Opogona 101
Orthochtha 108
Orthochtherella 108

Pachyarthra 7
Pararhodobates 235
Paratinea 75
Pelecystola 99
Perissomasticinae 27
Petersenia 29
Phalloscardia 27
Phereoeca 81
Phereoecini 31
Phthoropoeinae 7
Praeacedes 51
Praetinea 39
Pringleophaginae 31
Problastodes 108
Proctolopha 8
Promasia 8
Protaphreutini 7
Proterospastis 75
Psephologa 8
Psychoides 109

Reisserita 34
Rhitia 85
Rhodobatinae 7

Saridocompsa 14
Scardia 240
Sphallestasis 27
Sporadarthra 108
Stathmopolitinae 112
Stathmopolitis 112
Stenoptinea 239
Subpentagona 39
Syncalypsini 7

Teichobia 109
Teichobidae [sic!] 109
Teichobiinae 109
Tenaga 236
Tichobia 109
Tinea 52
Tineidia 71
Tineinae 30
Tineites 30
Tineola 49
Tineomima 47
Tineomorpha 29
Tineopis 52
Titaenoses 51
Triaxomasia 242
Triaxomera 240
Trichocerella 34
Trichophaga 42
Triochophagini [sic] 31

Ulocorys 108

Wegneria 104

Zularcha 99

Index to Entomological Species-Group Names

The numbers refer to the species number. Synonyms are in *Italics*. For the taxa (in **Bold**), listed in the additions to volume 7 (page 235ff.), were indicated the page number.

abchasicum 237
abligatella 244
abruptella 222
affinitella 206
agenjoi 202
agenjoi 240
agglutinata 196
albella 229
algiricella 218
allutella 254
amandatella 265
amina 221
anaphecola 226
ankerella 242
andalusicus 203
angusticostella 199
angusticostella 199
antipai 216
apicalis 276
arenbergeri 191
argentimaculella 239
armatum 237
armeniaca 183
asariella 183
ataxella 185
atomosella 227
atratella 225
atriensis 248
australis 207
autochthones 249

balcanicum 237
baldensis 240
barbarosi 271
baryspilas 246
basifasciella 237
biflavimaculella 261
bipartitella 221
bipunctella 231
bisonella 262
bispinella 234
bisselliella 226
blayi 285
boletella 240
bothniella 236
bugrai 225
burmanni 262

caprimulgella 242
carabachica 183
carbonella 223
caucasica 239
cavernicola 277
cecconii 265
centrogramma 183
chneourella 185
christophi 269
christophi 216
chrysopterella 209
coacticella 240
colonella 196
colongella 196
columbariella 238
crassicornella 201
crassicornella 201; 202
crassiflavella 198
crinella 226
crinitella 244
croaticum 237
crocicapitella 265
cubiculella 218
cuencella 186
cuencella (ssp. of *lambessella*) 186
cyaneimarmorella 239
cypellias 187

danubiella 203
decui 227
deluccae 227
demiurga 229
desertella 221
deserticola 185
despecta 227
destructor 226
diacona 184
distans 244
distinguenda 245
ditella 193

dobrogica 265
dubiella 234
dzhungarica 183
dzhungaricus 205

eremica 218
eurinella 244

falstriella 241
fenestratella 272
ferruginella 264
filicivora 281
flavescentella 228
flavofasciella 278
flavofimbriella 215
flavifrontella 226
fortificata 230
fraudulentella 274
frigidella 244
frustigerella 238
fuliginosella 223
fungivorella 241
furciferella 226
fuscella 244
fuscipunctella 244
fuscoviolacella 200

gajndzhiella 183
ganomella 243
gardesanella 217
gerasimovi 229
gigantea 183
glaseri 237
gliriella 241
graeca 238
greenlandica 219
griseella 244

haasi 208
hasarorum 199
hedemanni 236
henderickxi 268
heringi 265
hispanella 185
hongorella 284
horrealis 189
hungaricellum 187
hungaricus 241
hyalinella 265
hyrcanella 183

ignicomella 238
ignorata 237
ignotella 245
imella 266
imeretica 183
immaculatella 253
incerta 202
inconditella 240
inexpectata 241
inquinatella 216
insectella 194
insularis 189
irakella 206
irrorella 271
italica 238

karadaghica 238
kasachstanica 183
kenteella 223
klimeschi 239
kokkariensis 242

laevigella 258
lambesella [sic!] 186
lambessella 186
lanariella 226
lanella 232
lapella 243
larseni 192
latiusculella 211
latro 238
leonhardi 230
levantinus 241
libanotica 199
libanotica 206
lignea 196
ligniferella 275
liguriella 216
lombardica 265
luteocapitella 200
luteocostalis 263
lutosella 183

macedonica 242
macropodella 235
malgassica 227
maraschensis 206
margaritacea 230
marianii 201
marianii 239
maroccanella 204
mauritanica 214
mediella 273
mediterraneae 181
meleodes 266

melitensis 214
mendicella 239
merdella 248
messalina 233
metonella 230
microptera 235
minuta 240
misella 194
monacha 273
monachella 273
montana 257
monteiroi 239
montelliella 224
morellus 240
murariella 231

nedae 240
neglecta 260
nesiotes 279
nevadella 240
nigricantella 267
nigrifoldella 240
nigripilella 259
nigripunctella 236
nitentella 237
nitidella 266
nonimella 241
nubilipennella 244

obviella 264
occidentalis 218
ochraceella 182
omichlopis 241
omoscopa 276
ordubasis 183
orghidani 270
orientalis 250
oxymora 252

pacifella 245
palaestrica 219
palaestinella 248
pallescentella 240
pallidella 270
pallidella 181
panchalcella 277
paratrifasciella 238
panormitanella 212
parnassiella 185
parva 210
pellionella 229
peslieri 241
petrinella 188
petrinella 188
phoenicica 241
piercella 245
plumipes 275
pontica 183
prealpina 236
praematura 276
praetoriella 195
ptilophaga 265
punctigera 237
punctigera palaestinella 237

quadruplella 250

ratjadae 251
recticostella 218
reinhardella 239
relicinella 213
restonicae 238
rjabovi 183; 220
robinsoni 222
romanica 238
romeii 218
rosenbergerella 247
rostrata 237
rufulicaput 236
rumelicella 237
rusticella 194; 258

sacchari 275
samurensis 183
sanctaehelenae 275
sardica 237
saule 183
saxatilis 237
scandinaviella 220
semidivisa 245
semifulvella 242
seminolella 227
semispilotella 259
serotinella 181
severella 216; 223
shamica 241
sibiriella 236
siccanella 248
signatellus 241
simplicella 198
sordidella 185
spilotella 261
splendella 264
spretella 244
stepicola 183
steueri 235

straminella 269
strassenella 276
striolella 245
subcervinella 275
svenssoni 239
syriaca 190
syriaca 235

talhouki 206
tapetzella 219
taurella 183
taurensis 190
tauridella 238
tenerifi 234
tenuicornella 256
tenuipennella 242
teriolella 238
tessulatellus 240
thecophora 227
tragocoprella 283
translucens 230
trinotella 243
tripolitella 249
tripunctella 243
tristigmatella 228; 248
truncicolella 247
tugurialis 246
tunesiella 197
turatiella 188
turcica 238
turicensis 234

undosa 280
unidentella 236
unipunctella 246
uralskella 195
ustella 264

variegata 181
vau-flava 278
verhuella 282
verhuellella 282
verna 254
vestianella 258
v-flava 278
violacella 200
vitellinella 209

weaverella 259

zernyi 207
zoolegella 229